SOCIO-DEMOGRAPHIC DETERMINANTS OF ANTENATAL SERVICES UTILIZATION

(A Study among Delivery Seeking Women in Selected Hospital of Pokhara, Nepal)

A Dissertation Submitted to:
Department of Population Studies
Faculty of Humanities and Social Sciences
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DECLARATION

I declare that the dissertation entitled, "**SOCIO-DEMOGRAPHIC DETERMINANTS OF ANTENATAL SERVICES UTILIZATION: A STUDY AMONG DELIVERY SEEKING WOMEN IN SELECTED HOSPITAL OF POKHARA, NEPAL**" submitted to the Department of Population Studies, Prithvi Narayan Campus, Pokhara of Tribhuvan University, Nepal for Degree of Master of Arts in Population Studies is an original work of mine prepared under the guidance and supervision of my research supervisor. No part of it, in any form, has been copied from other sources without acknowledgement of submitted to any other university or institute for any degree or diploma. Views and expressions of the thesis accept the responsibility of mine for any errors and omissions to it.

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Date: April 2023

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LETTER OF RECOMMENDATION

This dissertation entitled **"SOCIO-DEMOGRAPHIC DETERMINANTS OF ANTENATAL SERVICES UTILIZATION: A STUDY AMONG DELIVERY SEEKING WOMEN IN SELECTED HOSPITALS OF POKHARA, NEPAL"** has been prepared by Mr. Meraj Ahmad under my guidance and supervision. I hereby forward this dissertation for the evaluation committee for final evaluation and approval.

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APPROVAL LETTER

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ABSTRACT

Thesis entitled "Socio-Demographic Determinants of Antenatal Services Utilization: A Study Among Delivery Seeking Women in Selected Hospitals of Pokhara, Nepal" was aimed to assess Socio-Demographic factors affecting ANC utilization by women who had been shifted in postnatal wards after delivering a child at Manipal Teaching Hospital. Duration of data collection was set from 25th June to 10th July 2022. Total sample was determined during data collection period. Purposive sampling method was used It was a descriptive study and sample size was 321. Data were collected by using structured questionnaires by interviewing mothers. Data were entered and analyzed in SPSS version 20. Frequency distribution tables were used to display results in number and percentage along with p value and odds ratio wherever require by applying Chi-square and logistic regression test at 5 per cent level of significance.

Major findings reveal that 81 per cent women completed ≥ 4 ANC visits out of which only 57 per cent had received good quality ANC services. Respondents' educational status, occupation involved and number of children, monthly income of their spouse, family types and use of mass media (TV/radio/internet) were significant predictors for ≥4 ANC visits. The odds of seeking ≥ 4 ANC visits were 9 times more among women whose spouse' monthly income were good (≥25,000 NRS/month) whereas, use of mass- media (TV/radio) accounts 10 times more likelihood of ≥4 ANC visits (OR=10.5, CI, 1.1-99.9). Likewise receipt of good quality ANC services showed significant association with mothers' age, use of social media and intention to having children. Women having access to social media and intention of having children had 1.9 and 25 times more odds of receiving good quality. During ANC visits, more than 90 per cent of women received TT injection, 93 per cent had their blood pressure measured and ≥70 per cent women received folic acid and iron tablets.

In summary respondents' educational status, spouse monthly income and number of children were major socio-demographic factors for ≥ 4 ANC use while intended pregnancies, access of mass media (TV/radio) and social media had significant role that create awareness and encourage them to seek ANC services during complications and seeking medical advices.

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ACRONYMS

ANC	Antenatal Care
BCC	Behavior Change Communication
CEB	Children Ever Born
DHS	Demographic and Health Survey
DHS	Department of Health Services
EDD	Expected Date of Delivery
FCHV	Female Community Health Volunteers
HIV	Human Immune Deficiency Virus
MCH	Maternal & Child Health
MDGs	Millennium Development Goals
MMR	Maternal Mortality Rate
MOHP	Ministry of Health and Population
NDHS	Nepal Demographic and Health Survey
NHSP2	Nepal Health Sector Programme-2
PHCC	Primary Health Care Centre
PMTCT	Prevention of Mother to Child Transmission
PNC	Postnatal Care
QPCQ	Quality of Prenatal care Questionnaire
SBA	Skilled Birth Attendant
SDG	Sustainable Development Goal
SPSS	Statistical Package for Social Sciences
TTBA	Trained Traditional Birth Attendants
UNICEF	United Nation International children's Emergency Fund
USAID	United States Agency for International Development
USG	Ultra Sonogram

CHAPTER I

INTRODUCTION

1.1 Background

The fifth Millennium Development Goals (MDG), according to World Health Organization (WHO, 2012), is to improve maternal health. This goal is being assessed using two targets one in the reduction of maternal mortality rate (MMR) by three quarters and second to achieve universal access to reproductive health care between 1990 and 2015 (Reinke et al., 2017).Maternal mortality has been defined by UNICEF as the death of a woman during pregnancy or within 42 days of the termination of the pregnancy , regardless of the duration and place of pregnancy, from any causes or complications related to the pregnancy but not as a result of accidents (Betran et al., 2005).

During the 2005 United Nations summit of Heads of State Meeting, new targets were added to the MDGs. Target B, for the fifth MDG, aims to achieve "universal access to reproductive health" (Ravindran & Govender, 2020).Two of the indicators used for monitoring this target are related to Antenatal care (ANC) utilization. One indicator is the proportion of pregnant women who have attended ANC and who were seen by skilled professionals (a doctor, a nurse or skilled midwife) at least once during the pregnancy. The second indicator is the proportion of pregnant women who have attended ANC at least four times during their pregnancy, and seen by any health care provider (UNICEF, 2008).

ANC is defined as the care that a woman receives from the confirmation of conception until she goes into labour. In this period, sufficient use of ANC services improves the outcome of pregnancy and childbirth (Onasoga et al, 2012). Previous researches have shown that four ANC visits would be adequate for normal pregnancies, with more visits necessary only in the case of high-risk pregnancies (Simkhada, et al., 2008).

Effectiveness of antenatal care outcome relies on the quality of care provided during each ANC visit through health promotion, disease prevention, complication readiness

and birth preparedness plan (Berhe et al., 2018).The quality of ANC services influences women's health seeking behavior and help to improve healthcare delivery. Therefore receiving good quality ANC is an important determinant for completing four or more ANC visits that improve the survival and health of mothers and babies born (Tadesse Berehe & Modibia, 2020) ANC service component includes recording medical history, advice and guidance on pregnancy, assessment of individual needs, screening tests, education on self-care, delivery and identification of conditions detrimental to health during pregnancy, first-line management and referral service if necessary (Tadesse Berehe & Modibia, 2020).

If we analyze maternal death data globally, we find ninety-nine percent deaths occurs in the low- and lower-middle-income (LMICs) countries that include South-East Asian countries. Continent wise data reveals highest MMR in , Sub-Saharan African countries with 546 which is the highest while MMR in developed regions like Europe, America, Australia on an average have just 12 maternal deaths per 100,000 live births that is very low (OECD & WHO, 2022). Similarly in SAARC countries MMR is comparatively higher than that of developed countries. In Nepal MMR declined sharply but still higher than its South Asian neighbors such as India (174), Bhutan (148), Bangladesh (176), Myanmar (178), Pakistan (178), and Sri Lanka (30) (Sharma et al., 2021). Women die as a result of complications during and following pregnancy and childbirth. Most of these complications develop during pregnancy and most are preventable or treatable. Other complications may exist before pregnancy but are worsened during pregnancy, especially if not managed as part of the woman's care. The major complications that account for nearly 75 per cent of all maternal deaths are severe bleeding (mostly bleeding after childbirth), infections (usually after childbirth), high blood pressure during pregnancy (pre-eclampsia and eclampsia), complications from delivery, unsafe abortion (Sitaula et al., 2021).

Nepal started delivering health services implementing short term health plans of 5 years. It was in that setting that the need was felt to have a Long-Term Health Plan to address health needs of people as a result First Long-Term Health Plan (1975-1990) and second long term plan (1997-2017) were implemented under the guidelines set by National Health Policy in 1991 with the aim of reducing maternal mortality and improving the health of the people (MoH, 2012). The target of 20-year second long-

term health plan 1997-2017 i.e. MMR 250 per 100,000 live births by 2017 from 830 per 100,000 live births in 1991 and looks set to drop them Millennium Development Goal (MDG- 5) adopted by member states in September of 2000, which aim to reduce the Maternal Mortality Ratio (MMR) by three quarters between 1990 and 2015 target of 134/ 100 thousands live birth by 2015 (MoH, 2012).

National Health Policy (1991) represents a turning point, as it is the first in Nepal to adopt an integrative approach to health services. Nepal is on progress of reducing maternal mortality ratio, which has declined from 850/100,000 live births in 1990 to 415 in 2000 and further to 229 in 2011 (MoH,2011). The target of MDG-5 is to reduce maternal mortality ratio up to 134/100,000 live births by 2015. WHO recommended that pregnant women should receive ANC services at least 4 times starting from the first trimester of pregnancy (Villar, J. M & Bergsjo, 2002).

National Reproductive Health Strategy (1997) was formulated with the broad aims of reducing maternal mortality safe motherhood program being one of them main focus being given to focused on ANC check-ups (MoH, 2012). Fifteen year's Safe motherhood plan of action was also developed in 2001. This includes the National Safe-Motherhood Plan 2002–2017 (Rana et al., 2009).

In 2000; the United Nations (UN) adopted eight Millennium Development Goals (MDGs) to be met by 2015.goal-5 reduction in maternal mortality and access to reproductive health care, Goal- 5 (MoH, 2017). Nepal formulated Nepal Health Sector Program-implementation plan I, in 2004 to achieve the health-related millennium development goals. There were fixed targets for assessing the progress of maternal health with different indicators. The common maternal health targets were: reduce maternal mortality ratio from 539 to 300 per hundred thousand live births in 2009, and 134/ 100 thousands live birth by 2015. Nepal introduced the Aama Program (Maternity Incentive Scheme) in 2008 which aims to reduce financial barriers for women (Aryal & Bhatt 2014). There was a provision of NRs 800 to those women who complete four ANC visits per national protocol (FHD, 2018). In 2010, government formulated Nepal Health Sector Programme Implementation plan II (NHSPI) from 2010-2015 (MoH, 2010). This plan targets to reduce maternal mortality up to 134 per hundred thousand live births which is directly corresponding to the target of MDG-5.

The MoHP in Nepal recommends four ANC visits at 4th, 6th, 8th, and 9th month of pregnancy (FHD, 2016).

Between 1990 and 2015, the global maternal mortality ratio (MMR) decreased by 44 per cent, from 385 to 216 maternal deaths per 100,000 live births. Despite this progress, the world still fell far short of the Millennium Development Goals target of a 75 per cent reduction in the global MMR by 2015 (Sarker et al., 2020).At the end of February 2015 new Sustainable Development Goals (SDGs), to be achieved by 2030 was framed, the motto of which was "Strategies toward ending preventable maternal mortality " that set the Global Target: to reduce global maternal mortality ratio (MMR) to fewer than 70 maternal deaths per 100,000 live births and country specific targets to reduce their MMRs by at least two-thirds from their 2010 baseline; national targets set for countries with the highest maternal mortality burdens will need to achieve even greater reduction and no country should have an MMR greater than 140 maternal deaths per 100,000 live births, a number twice the global target by 2030 (National Planning Commission, 2017)

Therefore, in 2016, WHO updated the ANC guidelines to have at least 8 ANC contacts from 4 visits, as evidence suggested that higher frequency of ANC contacts with a health provider is associated with a reduced likelihood of stillbirths (WHO, 2019).A number of socio-demographic factors affect a woman's likelihood of attending ANC. The quality of care during an antenatal visit is also important. Particularly in low-resource settings, shortages in essential medicines, equipment and trained staff are barriers to providing high quality care. In addition, the content of care delivered during pregnancy is poorly measured, limiting the ability to identify and address weaknesses. During ANC visits few essentials services must be available and utilized by pregnant women like: blood pressure measurement, urine testing for bacteriuria and proteinuria, blood testing to detect syphilis and severe anemia, weight/height measurement (optional) and fetal growth monitoring (Muchie, 2017).

1.2 Statement of the Problem

Globally, 830 women die each day from preventable causes related to Pregnancy or childbirth and the lifetime risk of death due to pregnancy or childbirth-related complications are higher in developing countries as compared to developed countries.

For example, the lifetime risk of death of one-year-old women from a maternal cause is; one in 180 in developing countries vs. one in 4900 in developed countries (Alobo et al., 2022). Despite Nepal made good progress on the MDG 5 targets of reducing maternal mortality to achieve the MDG. The maternal mortality ratio (MMR) dropped from 850/100,000 in 1990 to an estimated 258 in 2015 which is still higher than its South Asian neighbors such as India (174), Bhutan (148), Bangladesh (176), Myanmar (178), Pakistan (178), and Sri Lanka (30) (WHO et al. 2015). Although there has been a reduction in pregnancy-related mortality in Nepal from 543 deaths/100,000 live-births in 1996 to 259 deaths/100,000 in 2016 (MoH & New ERA, 2017), there is much more to achieve.

The patterns of maternal mortality (MM) reveal large levels of inequity between and within countries – 99 per cent of maternal deaths occur in developing countries and only 1 per cent of deaths in developed countries. Sub-Saharan Africa leads this death toll, accounting for 50 per cent of all maternal deaths worldwide (900 deaths per 100,000 live births), and South Asia accounts for another 35 per cent (500 deaths per 100,000 live births), which is in extreme contrast with the high-income countries 9 deaths per 100,000 live birth (Acharya et al., 2015). In Nepal, the coverage of four ANC visits is low i.e. (69%), (MoHP, 2017). Further, less than 25 per cent of women had received good-quality ANC. Between 1990 and 2015, the global MMR decreased by 44 per cent, from 385 to 216 maternal deaths per 100,000 live births. Despite this progress, the world still fell far short of the Millennium Development Goals target of a 75 per cent reduction in the global MMR by 2015. Moreover, large geographic inequalities persist (Singh, 2016).

In February 2015, WHO framed the new Sustainable Development Goals (SDGs) agenda through 2030 the motto consisted of “Strategies toward ending preventable maternal mortality (EPMM)” that set the Global Target: to reduce global maternal mortality ratio (MMR) to fewer than 70 maternal deaths per 100,000 live births by 2030, and country specific targets to reduce their MMRs by at least two-thirds from their 2010 baseline; national targets set for individual countries was By 2030, countries should reduce their countries with the highest maternal mortality burdens will need to achieve even greater reduction.-and-By 2030, no country should have an MMR greater than 140 maternal deaths per 100,000 live births, a number twice the global target (WHO, 2015).

Antenatal care is identified as important intervention to improve maternal health. ANC are widely acknowledged, millions of women in developing countries are not receiving such care as per recommended standard of frequency and quality. The proportion of women who attend ANC is low especially in developing countries which account for poorer maternal health indices compared to the developed countries (MoH, 2017). The new ANC model of minimum of eight contacts by WHO has further exerted pressure to increase ANC coverage and explore pre-existing factors for the poor-quality ANC received. Although the quality of care is one of the strategic principles of the Nepal Health Sector Strategy 2015–2020 (MoHP, 2015), further analysis of the 2015, National Health Facility Survey demonstrated that the quality of ANC services in the majority of the dimensions such as effectiveness, efficiency, and safety was poor (Achary et al., 2018). Similar results were found from the study on utilization and quality of ANC visits from Nepal Demographic Health Survey 2011.

The Ministry of Health and Population (MoHP) of Nepal has been providing maternal and child health services including ANC check-ups free of cost through the health system network including at the community level (Deo, 2015). Moreover, as an incentive, each woman receives a fixed amount of money to cover transportation costs and 4 ANC visits (Upreti et al., 2012). Despite the support from the Government, a large portion of women still do not receive the recommended number of ANC visits. Nepal is a signatory to the Sustainable Development Goals (SDGs), which have set ambitious targets to reduce the MMR to 70 per 100,000 live births and to achieve 4 or more ANC coverage by 90 per cent (National Planning Commission 2017). Ensuring access to ANC also helps achieve the United Nation's Sustainable Development Goal SDG-3, which emphasizes universal health coverage, (UN, 2016). A large number of studies worldwide have examined the various aspects of ANC. While higher rates of ANC coverage are an important step in improving maternal and neonatal health, they do not tell us about the content of that care. Without assessing and improving the quality of ANC received by all women, we will continue to fall short of our goals to decrease maternal and neonatal morbidity and mortality. Research in developing countries shows demographic, social and economic factors influence the utilization of ANC further analysis of data of 2011, Nepal Demographic and Health Survey (NDHS) show large variations and gaps in the utilization of ANC care based on demographic, social and economic status of women.

The literature on utilization of ANC services in a number of developing countries have indicated that socio-demographic status of women are associated with both the number of ANC visits and the quality of health care received (Joshi, 2014). Hence there is a need to explore socio-demographic factors that have major role in attending the recommended number of ANC visits in Gandaki Province and whether or not pregnant women who visit hospital do receive essential ANC services. Thus, the aim of this study is to identify the influence of demographic and socio- economic variables on ANC visit during pregnancy in Nepal.

Research Questions

1. What are the demographic, social and economic factors interlinked with ANC attendance among delivery seeking women at Manipal Teaching Hospital, Pokhara?
2. Is there any relationship between socio-demographic and economic factors with ANC attendance during the last completed pregnancy?
3. What is the Quality of ANC service provided by Manipal Teaching Hospital and its utility among delivery seeking women at Manipal Teaching Hospital, Pokhara?

1.3 Objectives of the Study

General Objective

The general objective of the study is to investigate ANC services and its determinants among delivery seeking women at Manipal Teaching Hospital, Pokhara

Specific Objectives

1. To assess socio-demographic factors interlinked with ANC visits among delivery seeking women at Manipal Hospital, Pokhara
2. To examine relationship of socio-demographic factors with ANC visits
3. To assess the Quality of ANC services provided by Manipal Hospital and its utility among delivery seeking women at Manipal Hospital, Pokhara.

1.4 Rationale of the Study

Worldwide, complications during pregnancy, childbirth and the postnatal period are the leading causes of death and disability among women of reproductive age (WHO,

2006). In 2010, there were around 287,000 maternal deaths globally (WHO, 2012). A large majority of these deaths are preventable (WHO, 2005) and almost all of the deaths (99%) occur in low-income countries (WHO, 2005). Additionally, for every maternal death, an estimated 20 women suffer injury, infection or other morbidity (Hogan et al., 2010). Nepal has a high maternal mortality ratio at 281/100,000 live births (MoH, 2005). Good quality antenatal care (ANC) can reduce maternal morbidity and mortality and perinatal mortality (WHO, 2005). The quality of ANC is measured by three dimensions: number of visits, timing of initiation of care and inclusion of all recommended components of care (WHO, 2004). Good quality ANC improves maternal health, decreases the chances of suffering from anemia, pregnancy induced hypertension and preterm labor (Ali et al., 2020) and promotes positive pregnancy outcomes, including a reduced risk of low birth weight (<2,500 grams) and preterm babies. ANC increases the use of a Skilled Birth Attendant (SBA; a doctor, nurse or midwife) during delivery and postnatal care possibly because the visit can be an opportunity to educate women about the merits of skilled birth attendance (Mrisho et al., 2009). ANC visits provide an excellent opportunity to deliver education regarding the danger signs and symptoms during pregnancy, delivery and the postpartum period and to focus on birth spacing and family planning (WHO, 2003). A study from Bangladesh found that women who had at most one ANC visit were twice as likely to suffer a perinatal death compared to women who had three or more ANC visits. Early initiation of ANC and attendance at four or more ANC visits are associated with higher infant birth weights and lower infant mortality rates (Cokkinides, 2001).

The timing of the first ANC visit, as well as the total number of ANC visits also affect the quality of ANC that a pregnant woman receives. Nepal follows the World Health Organization's recommendations of initiation of ANC within the first four months of pregnancy and at least four ANC visits during the course of an uncomplicated pregnancy. Several studies from low-income countries, including a systematic review, depict a positive but weak association between the number of antenatal visits and maternal and child health outcomes such as maternal complications and mortality, stillbirths and low birth weight. Such results have provided impetus for investigation into the components and quality of ANC (Beeckman et al., 2011).

In addition to the number of visits, the components included in ANC greatly influence its effectiveness and might also affect women's decisions regarding the time of

initiation and continuity of care. Poor quality ANC has the potential to reduce its use. The components of ANC suggested in Nepal include: iron supplementation, blood and urine tests, at least two tetanus toxoid injections, measurement of blood pressure, intestinal parasite drugs and health education regarding their pregnancy. The different components of ANC improve maternal and child health in different ways (Ghosh & Sharma, 2010). Iron supplementation reduces the proportion of women becoming anemic by increasing hemoglobin up to 0.7 gram/deciliter per week; screening for hypertension and proteinuria allows early detection and treatment for preeclampsia and reduces case fatality of this condition; screening for infection reduces fetal loss and maternal and infant morbidity, preterm and low birth weight babies. Administration of antenatal tetanus vaccination virtually eliminates this condition in neonates. Receiving ANC from an SBA, having at least four ANC visits which include blood pressure measurement, blood and urine tests and advice on pregnancy complications and where to go in case of such complications, have been shown to decrease the risk of neonatal mortality. They have also been shown to increase rates of immunization; enhance the chances of initiating breastfeeding within one hour of birth and the maintenance of exclusive breastfeeding for more than four months and increase the use of postnatal check-ups (Neupane & Doku, 2011).

An Indian study found that, compared to women who had neonatal deaths, those with a live birth had received better quality ANC which included body weight measurement, blood and urine testing, a full course of iron tablets, tetanus toxoid injections, abdominal examination and ultrasonography (Ghosh & Sharma, 2010) .The recommended number of visits is not always met in Nepal where more than a quarter (26%) of Nepalese women reported no ANC visits and only 29per cent reported four or more ANC visits (MoH,2005). Another Nepalese study showed that younger women, living in urban areas, having primary education or higher, with lower parity, from non-farming occupations, in higher wealth quintiles, who did not smoke and whose husbands also had primary education or higher, were more likely to attend four or more ANC visits and receive higher quality ANC (Neupane & Nwaru, 2013). There are few studies focusing on the quality of ANC in low-income countries including Nepal (Bbaale, 2011). This study aimed to investigate factors associated with 1) four or more ANC visits and 2) receipt of good quality ANC, among Nepalese women of their recent pregnancy.

1.5 Limitation of the Study

- Since it was hospital-based study, the result cannot be generalized
- As the study aimed to get information of women's recent pregnancy experiences, therefore pregnancy experiences of older siblings which could have given important information were not assessed considering recall bias.
- Resources constraints and distant location of patients prevented us to take more samples and also limited to conducted qualitative study (FGDs, in depth interview) to give added strength on increased validity of information.

1.6 Organization of the Study

The report is divided into six chapters .First chapter starts with background followed by statement of problem and rational of study, research objectives, research questions and limitation of study. Second chapter presents literature review. Third Chapter gives detailed information on research methods used. Fourth Chapter presents Results of the study. Chapter six presents Study's major findings, summary, conclusion and recommendations.

CHAPTER II

LITERATURE REVIEW

Worldwide maternal health is a significant health concern, as many women give birth at least once during their lifetimes. In developing nations, complications during, pregnancy, labor and delivery, and postpartum period can be among the leading causes of death due to limited access to health care. International organizations concerned with health use a variety of methods for combating maternal mortality rates, including providing education, increasing the number of health care providers, and improving sanitation. In pregnancy, maternal health includes a number of concerns. One of the most important is keeping the mother healthy so the fetus experiences normal development. Pregnant women have unique dietary needs and must be careful about environmental exposures to toxins that might hurt their babies. In the case of women with preexisting disabilities or diseases, some care may need to be taken in pregnancy to protect their health while they carry the baby to term; women with mental illnesses who cannot take medications during pregnancy, for example, may need counseling and other support. While motherhood is often a positive and fulfilling experience, for too many women especially those in developing nations it is associated with suffering, ill-health and even death (UNICEF, 2008). In many developing countries, selected groups of women start their suffering from conception through delivery and after delivery or postpartum periods. In this process many die before delivering the child or immediately after delivery – during postpartum.

2.1 Theoretical Literature

2.1.1 Concept of Maternal Healthcare Services

Women's wellness and health matter not only to themselves and their families but also to the communities and even critical for the future generation. They undertake as a vital player in bearing and raising children (WHO, 2003). Despite pregnancy and childbirth are natural phenomena, they are not risk-free processes. Unwanted suffering and deaths of mothers and children occur as they do not gain access to the minimum healthcare services. Pregnancy-related deaths and disabilities contribute not only to

human suffering but also to losses in social and economic aspects. The women who die are essential for the health and well-being of their families. Their tasks of wives and mothers are caring for the children, the elderly and the sick, educating the young, preparing food, and even generating income. A drain on all development efforts results from their deaths. Therefore, it is important to prevent this burden of mortality and morbidity of women. As pregnancy is not a disease, mortality, and morbidity related to pregnancy are preventable without the need for sophisticated and expensive technologies or drugs, even with simple and cost-effective interventions (WHO, 2013).

According to the finding of WHO (1995), deaths of mothers and infants can be reduced by the communities who are well-informed about danger signs and symptoms of pregnancy and delivery, availability and accessibility of quality health services with a proper referral system to a higher level of the healthcare system for management of complication. To reduce the amount of maternal deaths around the year 2000 by half, an international project naming the ‘Safe Motherhood Initiative’ was commenced in 1987.

A series of initiatives, practices, protocols and service delivery guidelines ensuring women to receive high-quality healthcare during pregnancy, childbirth and after delivery for the achievement of optimal health of mother and infant, are encompassed in Safe motherhood (Kwast, 1993). The “six pillars” of safe motherhood represent the comprehensive approach of provision of healthcare for the well-being of mothers and their babies in preventive, promotive, curative and rehabilitative measures.

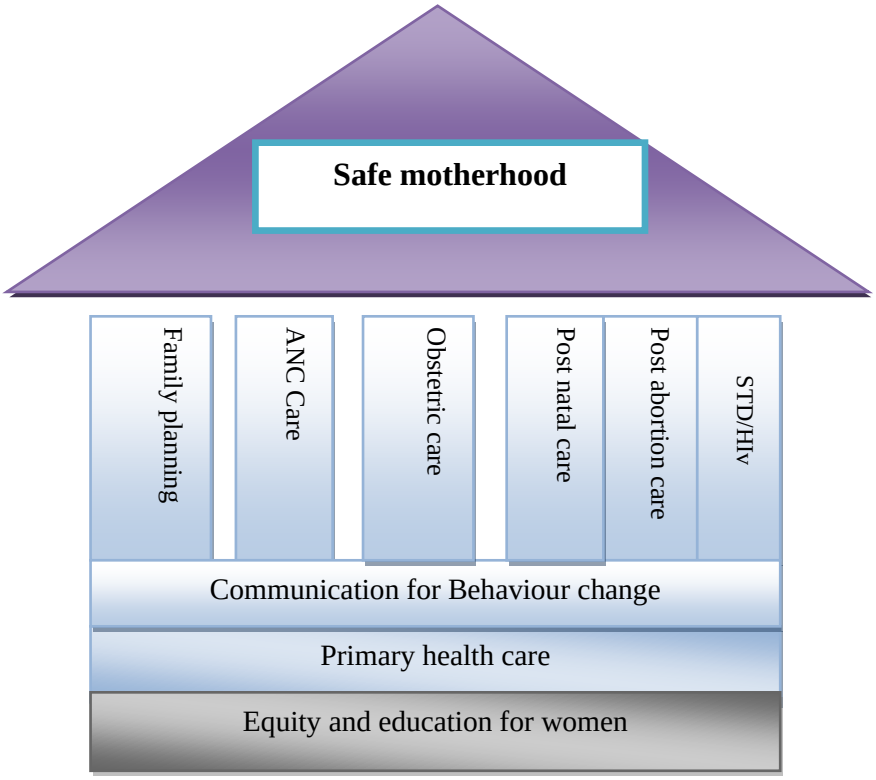


Figure 2.1: Six pillars" of Safe Motherhood

(From maternal health handout iii. 2.2: developing an advocacy goal and objective the policy project maternal health supplement iii- 4.) A brief explanation about each pillar follows (The Future Group International, 1999):

1. **Family planning:** aims to provide adequate information and services about setting pregnancy-free intervals, planning and delaying the timing of pregnancies, and setting the number of children to couples and individuals.
2. **Antenatal care:** its checkup is vital to detect complications early followed by respective treatments promptly. Moreover, provision of necessary supplements and vaccinations are essential for pregnant women.
3. **Obstetric cares**: ensuring all deliveries are under the supervision of the skilled birth attendants or the medical professionals with equipment set up for a clean and safe delivery. Besides, emergency care is made readily available to those women in need of high-risk pregnancies and complications.
4. **Postnatal care:** provision of care to the mother and baby after delivery. Counseling about childcare, breast feeding, family planning is included.

   Post abortion care: it is to prevent complications resulting from abortion and to provide health education about family planning.

STD (sexually transmitted diseases)/HIV/AIDS control: This includes voluntary counseling, testing, prevention of transmission to the unborn baby and risk assessment for future infection. According to WHO, the quality of ANC services can be categorized into good, moderate or poor by assessing and measuring and grading on basis of essential procedures or services been received by pregnant women during ANC visits. The first component is to assess whether proper history was taken, physical examination and laboratory test performed. The second component examine whether women were initiated folic acid, iron and calcium supplemented, given nutritional advice, information regarding danger signs and been told about complications management plans, planning delivery, And the last one is care provision covering of tetanus toxoid immunization, psychosocial support, and record keeping (Mollon, 2015). In this process, three factors constitute as components of quality measurement: i) Structure, ii) Process and iii) Outcome.

1 **Structure means**: the number and type of health personnel involved, types of equipment used, and basic infrastructure of health facilities specially, adequacy of waiting rooms, post-operative wards, clean water and toilet facilities available.

2 **Process implies**: activities involved in providing and receiving care, timeliness, continuity, and patient compliance.

3 **Outcome:** measures of quality of life (returned to normal state), functional status and patient satisfaction (Mollon, 2015).

2.1.2 Brief History of Antenatal Care

Modern pre-natal care was introduced by J. W. Ballantyne, a Scottish physician around 1902. His initial interest was focused on the prevention of fetal abnormalities. He later recognized that prenatal care might reduce maternal, fetal and neonatal deaths. By 1907, programs of organized prenatal care were available in New York City. Services were offered to pregnant women beginning no earlier than seventh month of pregnancy. In 1920, prenatal care was expanded to reach women early in gestation and more often. They were visited every two weeks until seven months of gestation and weekly until birth. Pregnant women were seen primarily in their homes by nurses. Nurses inquired about danger signs, checked the patient's blood pressure and urine, assess fetal heart tones and provide advice about diet, hygiene, exercise, and preparation for infant care (Mollon, 2015). Focused antenatal care (FANC) aims to promote the health of mothers and their babies through targeted assessments of

pregnant women to facilitate Identification and treatment of already established disease, Early detection of complications and other potential problems that can affect the outcomes of pregnancy, prophylaxis and treatment for anemia, malaria, and sexually transmitted infections (STIs) including HIV, urinary tract infections and tetanus. Prophylaxis refers to an intervention aimed at preventing a disease or disorder from occurring Birth preparedness Nutrition, immunization, personal hygiene and family planning Counseling on danger symptoms that indicate the pregnant woman should get immediate help from a health professional (Joshi et al., 2014). In the case of uncomplicated pregnancies, the 2002 Focused Antenatal Care model of the WHO recommended at least four antenatal care visits; the first visit to take place before16 weeks of gestation (villar, 2002). However, this model has now been superseded by the 2016 WHO ANC model; where a minimum of eight ANC contacts is recommended to address quality ANC service (WHO, 2016).

2.1.3 ANC Services at Preset in Global Context

An estimate from United Nations International Children's Emergency Fund (UNICEF) in 2015 depicts those 800 women and 2700 newborns died every day due to the complication of pregnancy and childbirth. Compared to 59 per cent in 1990, women in 2015 had more access to antenatal care services, where 71 per cent of total women in the world can get access to antenatal care services. Maternal deaths are being increasingly concentrated in Sub-Saharan Africa and some South Asian nations, the nations that lack quality services. Disparities exist all over the world in terms of access to service with poor, uneducated women coming from the lower wealth quintile having less access to much need ANC, and the disparity on access has not changed in the last 15 years (Neupane, et al., 2016). According to WHO, Global Health Observatory, in 83 countries, 75 per cent of women had at least four times ANC check-ups, while 86 per cent of women had received ANC checkup at least once by the skilled professionals. In developed countries like the United States, France, and Canada, the figure ranges above 80 to 100 per cent. While the statistics are quite different for developing nations, including African and some Asian countries, the number ranges from somewhere between 50 and 60 per cent. A report published by WHO mentions that death due to maternal-related causes in a developing country is 33 per cent higher than for women living in a developed country (WHO, 2019). In 2015, Maternal Mortality Rate (MMR) in developing

countries was 239 pregnant women per 100,000 live births, compared with 12 per 100,000 in developed countries (WHO, 2016). While almost all pregnant women in high-income countries have had at least four prenatal visits, only 40 per cent of pregnant women in low-income countries have received more than four prenatal cares (BK, et al., 2019) The MMR of the world decreased by 52 per cent between 1980 and 2015, which indicated that the public health policy failed to meet the requirement of reducing the three-quarters of the Millennium Development Goals (MDGs). Currently, Sustainable Development Goals have a high ambition to reduce maternal mortality to less than 70/100,000 live births by 2030, with an annual decline rate of at least 7.5 per cent. Thus, there is a need for more focused intervention to save the lives of mothers and children.

Evidence suggests that ANC checkup in the past has substantially contributed a lot to address the issues; an improved ANC checkup could potentially mean a better maternal and child health outcome. (Neupane & Nwaru, 2014). For instance, at least four ANC visits, which include blood pressure measurement, blood, and urine tests and advice on pregnancy complications and advice on where to go if such complications, has shown to decrease the risk of neonatal mortality (Neupane & Nwaru, 2014) In an Indian study, compared to women who had neonatal deaths, women who had given live birth had received better quality recommended number of ANC (Joshi, 2014).

2.1.4 ANC services in Nepalese Context

With the formulation of the National Safe Motherhood Policy in 1998, safe motherhood has forever been a priority program in Nepal. Under the safe motherhood program, every woman is provided with essential maternal health care services until now through the four-tire district health care system (Karkee et al., 2013). Due to the intense policy action which attracted a lot of programs and fund in the field of maternal and child health care, we have managed to increase the coverage of maternal health services over the years (Pandey et al. 2014). With such an implementation of effective policy, Nepal has been one of the few low- and middle-income countries that achieved several MDGs well before 2015 with an increase in the utilization of ANC by skilled health providers from 2011 to 2016, 58 to 84 per cent respectively

(DoHS,.2017*)*.However, inequality, exclusion, and under-utilization in health care services continue in regions of Nepal (Mehata et al., 2017) Almost 15 per cent of Nepalese women reported no ANC visits, and only half (50%) reported four or more ANC visits. The recommended number of visits is not always met (Joshi et al., 2014). A study conducted in Nepal (2013) revealed that educated women of younger age whose husbands were also educated, living in urban areas, from non-farming occupations and falling in higher wealth quintiles were more likely to attend four or more ANC and receive higher quality ANC. Very few studies focus on the quality of ANC in low-income countries like Nepal, and most of them have focused only on individual factors (Bbaale, 2011). The present study was conducted to explore different types of contextual and individual factors associated with current ANC service utilization in Nepal, to provide evidence-based information to address the problems more precisely on improving the equity and coverage of essential maternal health service utilization.

Routine Procedures during ANC

A. Risk identification

1. Women at risk for problems that have potential to complicate their pregnancies are identified through history taking, obstetric examinations and Routine tests.
2. By means history taking, the following risk factors can be detected:
3. Age of woman assessing whether it is in extreme ages (less than 18 or more than 40 years),
4. Underlying medical diseases (hypertension, diabetes, heart disease, etc.),
5. History of more than five previous births,
6. History of complications in previous pregnancy.
7. Obstetric examination is to find out mal-presentation, multiple pregnancies and complication in current pregnancy.
8. Routine tests which are carried out in hospital are blood pressure measurement (to detect hypertension), blood tests (for infectious diseases with potential transmission to unborn baby, for instance, Hepatitis B, C, HIV, Syphilis; to detect anemia and blood group), urine test (to find out protein and bacteria in urine) and ultrasound to estimate fetal growth and anomalies.

B. Health education and health promotion

Women and their family should be well-informed to make right decisions for pregnancy, delivery and post-delivery care, for instance, dietary pattern, breast feeding and appropriate methods of family planning after delivery. Moreover, provision of vitamin supplements and vaccination to mothers are included.

Some important Terminology used related to Maternal Health

- **Maternal death** refers to the death of a woman while pregnant or within 42 days of the termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by pregnancy or its management but not from accidental or incidental causes.
- **Maternal Mortality Ratio:** the number of maternal deaths per 100,000 live births. This measure indicates the risk of maternal death among pregnant and recently pregnant women.
- **Maternal Mortality Rat**e: the number of maternal deaths per 100,000 women aged 15-49 per year. This measure reflects both the risk of death among pregnant and recently pregnant women and the proportion of women who become pregnant in a given year.

2.1.5 Concept of Antenatal Care (ANC)

According to the World Health Organization (WHO), ANC is defined as the care provided during pregnancy by the qualified healthcare professionals (doctors, nurses, midwives, HA) to ensure the health of both mother and baby to become favorable ones. Risk assessment; prevention and management of underlying diseases related to or at the time of conception; and provision of health education and health promotion are the measures of routine ANC. Moreover, WHO's recommendations include woman-centered care ensuring to have a positive pregnancy experience with an effective and smooth transition to positive outcomes of labor and birth, finally achieving positive motherhood regarding mothers' self-esteem, competency and self-determination (National Guidelines for Antenatal Care For Service Providers, 2018) Antenatal care is a key strategy for reducing maternal mortality and morbidity, but millions of women in developing countries do not receive it. ANC is an important determinant of safe delivery (Bloom et al., 1999).

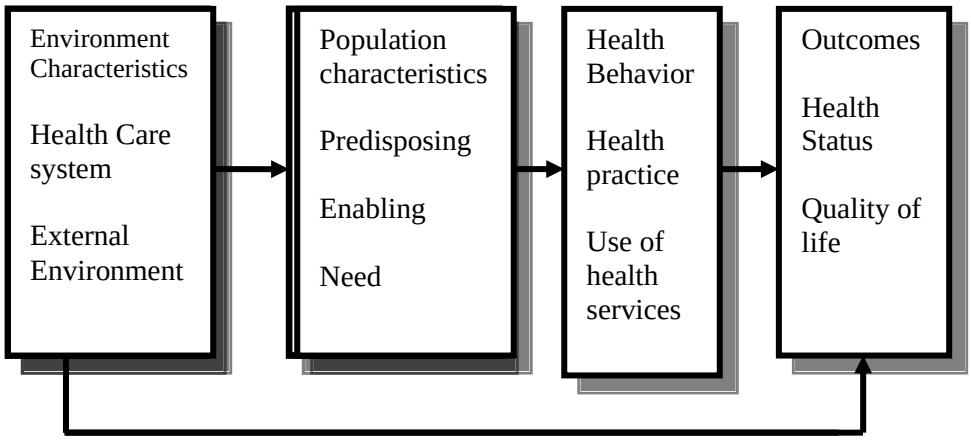
The primary aim of ANC is to achieve healthy mother and a healthy baby at the end of a pregnancy. Mothers who had not received good quality ANC were found to be more at risk of having low birth weight babies and there is clear association between infant mortality rate and lack of or poor-quality ANC. Antenatal visits may raise awareness about the need for care during delivery or give women and their families a familiarity with health facilities that enable their families a familiarity with health facilities that enables them to seek help more efficiently during a crisis. The number of ANC visits and the timing of the first visit are important for the health of the mother and the outcome of the pregnancy. WHO recommends that pregnant women start antenatal care in the first trimester to have enough time for diagnosis and treatment of problems and diseases?

Socioeconomic disparities in use of antenatal care are profound. In developing countries as a whole, women are more likely to report four or more antenatal care visits if they reside in urban rather than rural areas, have a higher education level or live in a richer household. These differentials are smaller in countries with overall high levels of antenatal care. Having only one antenatal visit may not be enough to ensure that women prepare for and receive sufficient care for childbirth, and WHO recommends a minimum of four antenatal visits. Overall, most women who receive any antenatal care have at least four antenatal visits, (Wang, & Fort, 2011). Antenatal care offers a unique opportunity to educate pregnant women and their partners on healthy behaviors, danger signs, who to contact and where to go in case of problems and other topics related to pregnancy, childbirth, puer-perium and childcare, and to help plan for a safer delivery. In addition, antenatal care may allow for the development of a relationship between pregnant women and the public health system, especially the midwife. In this context, the skilled birth attendant has a major role to play in providing screening and preventive services during the stages of pregnancy while also identifying risk signs (pre-eclampsia, anemia) that will render the women vulnerable to serious complications and even death. Unfortunately, the poor quality of ANC services in terms of preventing, diagnosing and treating complications has been observed but this has not deterred women from accessing antenatal services. Coverage of ANC first visit was reported to average 68 per cent in poor countries, which is indicative of multiple entry points (PHC and outreach services provide ANC) for relatively low-cost healthcare according to the health practitioners.

2.1.6 Models to Understand ANC services utilization

Maternal healthcare services are influenced by various socio-demographic and economic and service-related factors. One of the important theoretical Models that demonstrate factors influencing utilization of ANC is The Behavioral model given by (Anderson, 1995).A behavioral model that has developed by Andersen (1995) describes the multiple effects of using healthcare services, in particular, on the determinants of using maternal healthcare facilities. The framework of the Andersen behavioral model was adopted for classifying the factors associated with ANC visits. This multilevel model was developed by Ronald M. Andersen in 1968 and advanced in 1990 (the fourth version). It had different layers, including the external environment, population characteristics, and health behavior, and health outcome. This model suggests that people's awareness on utilization of health care services as well as their practices about health is a function of the following three main categories.

1. Predisposing Factors (Socio-cultural, Demographic and Other Factors)
2. Enabling Factors (Maternal Health Policy, Economic Factors)
3. Need Factors (Medical Reasons for Utilization)



Ronald M. Andersen in 1968 and advanced in 1990 (the fourth version

Figure 2.2: Framework of Utilization of health Services

Predisposing factors (socio-cultural, demographic and other factors)

There are number of studies which talk about the underlying aspects of utilization of maternal health care services. The role of socio-cultural, demographic and other factors, how they are taken as the factors for utilization of all components of maternal

health and what measures can be taken under such context are tried to highlight in this sub-section. Many studies before MDG came into execution highlighted some facts about the factors for poor utilization of maternal health services. Parental education, especially maternal education, is considered one of the strongest factors associated with receiving trained assistance at delivery (Lakshman, R..,2013). Not only these studies highlighted the importance of education but earlier studies even before 1990, (Caldwell, J., 1979) argue that education can have an empowering effect on women by broadening their limits and making them aware of available opportunities;

Enabling Factors (Maternal Health Policy, Economic Factors)

Many studies in the past also concentrated on why maternal health services such as ANC, delivery did not utilize according to set target. Some studies talk on the role of some factors in macro and micro level. Before 1990s, most of the studies highlighted the factors at the situation where maternal health policy was not to cover the cost associated in receiving care. Many countries now have free maternal health care policy at macro level. At this situation some studies have highlighted the context of utilization. Therefore, utilization of maternal health services is observed at the situation of maternal health policy and economic reasons; factors such as households' economic condition, religion/caste membership, exposure to mass media etc. may affect the utilization of maternal health services. Several earlier studies have also shown that there exists an association between the use of antenatal care and positive maternal health outcome.

Need factors (medical reasons for utilization)

It refers how people view their health status and their curiosity to utilize healthcare services. This healthcare need also include how the health status of individuals' is evaluated by the health providers and how they accept it (Babitsch & von Lengerke, 2012) In general, health need states about how people look their health condition and how they treat the symptoms of illness, pain and worries; and whether or not they decide about their health condition in order to use professional healthcare.

2.2 Empirical Literatures

Millennium Development Goals (MDG) achievements indicate level of quality of ANC in developing countries is not as satisfactory at all level. Studies conducted in some developing countries to assess the quality of antenatal care provided at public rural and urban facility setting in related to different inter related indicators show that ANC service provided was at lower standard level of quality. Studies indicate that only 1 in 40 ANC received pregnant women get quality care according to study standard (Said and Musa, 2020).

- A study conducted in Nepal revealed Antenatal care (ANC) is a vital component of the continuum of care for mothers and babies and provides an opportunity for the timely diagnosis of obstetric conditions, educating women about the danger signs of pregnancy, the advantages of breastfeeding and the importance of family planning (Singh et al., 2019).
- Study conducted in Khartoum show that the quality of antenatal care provided for pregnant women at Ribat hospital documentation of obstetric history on their parity, last menstrual period and expected date of delivery was 99.35 per cent, 98.3 per cent and 97.2 per cent respectively, on obstetric examination Blood pressure 88 per cent, fundal height measured for 93.3 per cent and fetal heart beat cheeked for 81.3 per cent. Laboratory test was done for 62 per cent. In this study find that pregnant women were not satisfied because of incomplete service were provided for them (Denu, 2017).
- A study done in Ghana found out that wealth status, age, ownership of health insurance (especially for rural women), educational attainment, birth order, religion and administrative region of residence were the significant predictors of the intensity of antenatal care services utilization (Sakeaha et al., 2017).
- Another community based cross sectional study conducted in Kenya shows that service provided for pregnant women not sufficient and not fulfill the components of antenatal care, (Denu, 2017). Study done at shows that supply for ANC service was adequate and more than 96 per cent of pregnant mother was9investigated, in related to health education and promotion 29 per cent to 37.2 per cent of mother provided. Mother advised for danger sign of pregnancy was less than 50 per cent at all level, this result was related to study conducted at Kenya Kenyan hospitals (Nakamya, 2015).

- The majority of the women do not obtain the four ANC visits during pregnancy as recommended (Ousman et al., 2019). The odds of having at least four ANC visits were significantly lower among women: below age of 20, those who were living in the rural areas, or Muslim. In contrast, participants with higher educational status, higher socio-economic level, who exposed to mass media, and self-reporting decision empowerment were significantly associated with having at least four ANC visits (Ousman et al., 2019).
- Study done in Bahir Dar showed that more than half of clients were not get quality ANC.The reason they gave was absence of clean latrine and inadequate water supply, receiving incomplete information about ANC, inadequate waiting area and seats, absence of privacy, long waiting time and difficulty to understand the provider (Ejigu, Woldie and Kifle, 2013b).
- study done in Ambo town indicates less provision of technical cares for the mother cause spoor quality, less than 10 per cent of pregnant mother advised for danger sign of pregnancy (Nemera Yabo, 2015). Study conducted in south region at Sidama zone rural health Centre only 33 per cent of mothers are satisfied by physical examination done for them about 51 per cent of pregnant mother was advised for danger sign of pregnancy. For all mother Hg, Urine, and blood group was not done only for 66.7 per cent of participants HIV test done (Denu, 2017). These show that service provided for clients were very poor quality it leads to poor satisfaction of clients.

2.2.1 Safe-Motherhood Program

The goal of the National Safe Motherhood Program is to reduce maternal and neonatal morbidity and mortality and to improve the maternal and neonatal health through preventive and promotive activities as well as by addressing avoidable factors that cause death during pregnancy, childbirth and postpartum period. Evidences suggest that three delays are important factors behind the maternal and new born.

Benefits: Women and children can benefit from following services:

- Birth Preparedness Package and MNH Activities at Community Level:
- Birth preparedness and complication readiness: (preparedness of money, health

facilities for the delivery, transport and blood donors).

- key ANC/PNC services: (Iron, TT, Albendazole, etc), self-care (food, rest, no smoking and no drinking alcohol, including pregnancy and post-partum period), essential new born care, identification and prompt care seeking for danger signs during pregnancy, delivery, post-partum and newborn period
- Ultrasound for fetal development
- Incentives for promoting ANC visits in health institutions.

The Government of Nepal introduced demand side intervention in maternal health. The Maternity Incentive Scheme was first such intervention, launched in 2005 and designed to share the cost of transportation to health facility. In 2009, in addition to transport incentive user fees were removed from all types of delivery care, known as the Aama Program. In 2012, a separate demand side intervention called 4 ANC incentives program (introduced in 2009) was merged with Aama Programme. In FY 2073/74, the free new born care program (introduced in FY 2072/73) has been merged to the Aama program. Aama programme in its current form is known as the Aama and New born programme and has the following provisions:

Transport incentive for institutional delivery: A cash payment is made to women immediately following institutional delivery: NPR. 1,500 in mountain, NPR. 1,000 in hill and NPR. 500 in Terai districts.

Incentive for 4 ANC visits: A cash payment of NRs. 400 is made to women on completion of four ANC visits at the 4, 6, 8 and 9 months of pregnancy institutional delivery and post-natal care.

Free institutional delivery services: A payment to the health facility for the provision of free delivery care.

For normal delivery, Health facilities with less than 25 beds receive NPR. 1,000; while health facilities with 25 or more beds receive NPR. 1,500.

For complicated deliveries health facilities receive NPR. 3,000 for C-Sections (surgery) NPR. 7,000.

Ten complications i.e. APH (Antepartum Hemorrhage) requiring blood transfusion, PPH (postpartum hemorrhage) requiring blood transfusion or MRP or exploration, severe pre-eclampsia, eclampsia, retained placenta, puerperal sepsis, instrumental delivery, and management of abortion complications requiring blood

transfusion and admission longer than 24 hours with IV antibiotics for sepsis are included as complicated deliveries. Anti- for RH negative is reimbursed NPR.5000.

Perforation of the uterus is an uncommon but potentially serious complication of pregnancy termination indicated or emergency CS, laparotomy for ectopic pregnancy and ruptured uterus is reimbursed NPR. 7000.

Incentives to health workers for deliveries: A cash payment of NPR. 300 are made to health worker attending all forms of deliveries viz: normal, complicated and caesarian section. This is to be arranged form the health facility reimbursement

Free sick new born care:

A payment to the health facility for the provision of free sick new born care. Health facilities are reimbursed for a set package of care cost viz: 'Package 0' no cost, 'Package A' NPR.1000, 'Package B' NPR. 2000 and 'Package C' NPR. 5000. Health facility can claim as high as combination of A+B+C NPR.8000, depending on medicines, diagnostic and treatment services provided.

Incentives to health worker for sick new born care:

A cash payment of N.P.R. 300 is made to health worker providing all forms of service packaged. This is to be arranged form the health facility reimbursement.

- Reproductive Health Morbidity Prevention and management Program
- Management of Pelvic Organ Prolapse
- Cervical cancer screening and prevention training
- Obstetric Fistula management
- Emergency Referral Fund
- Nyano Jhola Programme

2.2.2 Maternal Mortality and Challenges in Nepal

There was a steep decline in maternal mortality in Nepal from 539 per 100,000 live births in1996 to 281 in 2006; from 2006 onwards; however, progress has been slow, with the Maternal Mortality Ratio (MMR) reaching 239 per 100,000 live births in 2016. In contrast, the reduction in newborn mortality accelerated after remaining almost static between 2006 and2011: it was recorded to be 21 per 1,000 live births in

the 2016 Nepal Demographic Health Survey (NDHS). Although much progress has taken place in outcome- and output-level indicators under the National SMNH Long-term Plan (2006–2017), such as increased institutional delivery and skilled birth attendance rates it has not led to the desired levels of decline in maternal death. It is highly unlikely that Nepal will attain Sustainable Development Goal (SDG) 3 targets on maternal and newborn mortality, unless concerted efforts are made to accelerate reductions in MMR and Newborn Mortality Rate (NMR) through a Road Map that focuses on improving effective coverage and quality of services.

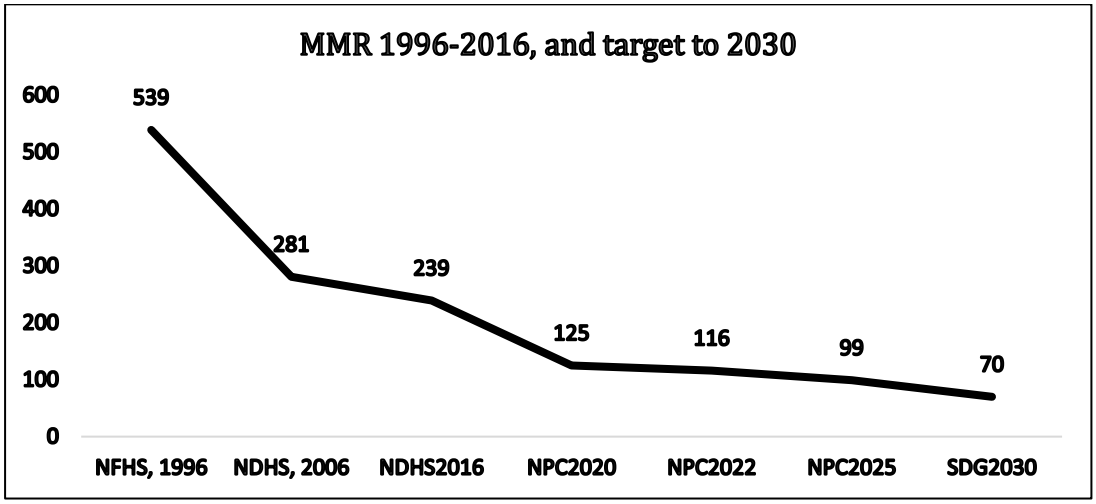
2.2.3 Safe Motherhood and Newborn Health Road Map -2030

Nepal's Safe Motherhood and Newborn Health (SMNH) Road Map 2030is therefore developed with a focus on ending preventable maternal and newborn deaths, by building on the successes of the SMNH Programme and addressing the remaining challenges, especially around strengthening community health system platforms and improving institutional quality of care in an equitable manner. The Road Map provides the framework around which Nepal can realize its commitments to MNH, as outlined in the GoN's 2018.

Safe- Motherhood and Reproductive Health Act. The Road Map is aligned with NHSS 2015–20203, Most of the causes of maternal and newborn deaths are preventable or treatable and the interventions to address them are well-known and cost-effective. The implementation period for the Road Map will be just over 10 years and during this period it is expected that the majority of maternal deaths will continue to be from direct obstetric causes (hemorrhage, pre-eclampsia/eclampsia, sepsis) although indirect causes such as Non-communicable Diseases (NCDs), infections and anemia are increasingly contributing to maternal deaths. In addition to high-quality curative services, community-based interventions to prevent such conditions, including birth preparedness and demand generation for services, also receive priority in the Road Map. Nepal's Safe Motherhood and Newborn Health (SMNH) Road Map 2030 (MoHP, 2019) aims to ensure a healthy life for, and the well-being of, all mothers and newborns. The Road Map is aligned with the Sustainable Development Goals (SDGs) to reduce the current Maternal Mortality Ratio (MMR) from 239 to 70 deaths per 100,000 live births (or at least two-thirds from the2010 baseline) by 2030.

2.2.4 Trends and Targets of Maternal Mortality in Nepal

Nepal has made substantial progress in reducing maternal mortality from 539 per 100,000live births in 1996 to 239 in 201617. With a MMR of 239, one out of every 167 women aged between 15 and 49 years in Nepal could die unnecessarily from complications in pregnancy or childbirth (MoH, 2016).Using a different methodology from the NDHS, the WHO provides similar 2015 estimates of maternal mortality at 258 per 100,000 live births19. The SDG global MMR target for Nepal, set by the National Planning Commission, is 70 deaths per 100,000 live births. The SDG commission recommends a two-thirds reduction from the 2010 United Nations (UN) estimated baseline, which for Nepal was 349 per 100,000 live births. Based on this the 2030.SDG MMR target for Nepal should be approximately 117 deaths per 100,000 live births.



***Data source**: Nepal Family Health Survey 1996, Nepal Demographic and Health surveys,2006, 2016*
Targets from National Planning Commission 'Sustainable Development Goals Status andRoad Map: 2016–2030

Figure 2.3: Maternal Mortality Decline, 1996–2016, with Projected Targets to 2030

2.2.5 Progress across the Continuum of Care: Antenatal Care

Nepal has made impressive improvements in maternal, child, infant, and neonatal health in the last decade. The Millennium Development Goals (MDGs) focus on expanding access to basic health interventions known to be effective. Nepal has achieved all MDG 4 targets of reducing infant and child mortality rates, along with increasing immunization against measles. Nepal was also very close to meeting the targets for reducing the maternal mortality ratio (MMR) and increasing births attended by skilled birth attendants (SBAs) (National Planning Commission, 2016). Progress in Nepal on the reproductive health targets were partially achieved with an almost two-

fold increase in the contraceptive prevalence rate (CPR) for modern methods (24 per cent in 1990 to ~50 per cent in 2015) and a significant increase in ANC coverage (National Planning Commission 2016). Improving access to health care by expanding health services and strengthening community-based interventions were key factors in Nepal's progress towards the MDG targets. The Nepal Safe Motherhood Program (NSMP) initiated both demand and supply side strengthening through the provision of free delivery care, financial incentives that cover the transport costs to the health facility for ANC and delivery care, and rapid expansion of birthing centers with 24 hour, 7 days- a-week delivery services (Ministry of Health and Population (MOHP, 2007).In the era of the Sustainable Development Goals (SDGs), increased access to care alone will not be sufficient to improve health outcomes if health systems cannot provide high quality care (Kruk, 2018). It is revealed that the improving coverage of health services has limited effect on health outcomes in poor quality of care conditions (Godlonton & Okeke, 2016). The 2016 Nepal Demographic and Health Survey (NDHS) reported that 69 per cent of women received four or more ANC visits from a skilled provider and 57 per cent delivered at a health facility, compared to 50 per cent and 35 per cent respectively in 2011.Institutional delivery increased from 35 per cent in 2011 to 57 per cent in 2016, although home births are still common in rural areas (54.3%).

These improvements in maternal health service coverage have not been reflected in the current MMR, which has decreased only slightly from 281 in 2006 to 259 in 2016 (MoHP, 2015). A 2013 national assessment of birthing centers showed that the quality of clinical care (ANC and delivery care) was very poor and that facility readiness to provide quality care as per the NSMP guidelines was suboptimal (MoHP, 2014). It is essential that clients be given quality clinical care at a health facility that meets the minimum standards of care in order to have a direct impact on health outcomes. Access to quality, essential health care services and achievement of universal health coverage in line with the SDGs on health are now priorities in many low and middle-income countries including Nepal (WHO, 2016).Quality of care is one of the four strategic principles of the Nepal Health Sector Strategy (NHSS) 2015-20. The NHSS defines health care to be of good quality when it is effective, safe, client-centered, timely, equitable, culturally appropriate, efficient, and reliable (MoHP, 2015).A first crucial step in the delivery of high-quality care is the assessment of quality of care at

health facilities and the identification of the gaps that weaken the quality of care. Several indicators that measure the quality of care at point-of-delivery have been identified under the NHSS via the data obtained from the Nepal Health Facility Survey (NHFS) (MOH, New Era, NHSSP, and ICF 2017) and other sources under the auspices of the Ministry of Health. In addition, as warranted by the National Health Policy 2014, an autonomous accreditation body was to be established for quality2assurance of health services in the public and private sectors. However, an accreditation body has yet to be formed. Meanwhile, it is essential to begin assessing the quality of care with data available in the NHFS. We currently know very little about the quality of care in the health sector of Nepal. The comprehensive data in the 2015 NHFS on ANC, family planning (FP), and sick child care allowed for the first in-depth assessment of the quality of care in these service areas.

2.2.6 Conceptual Framework of the Study

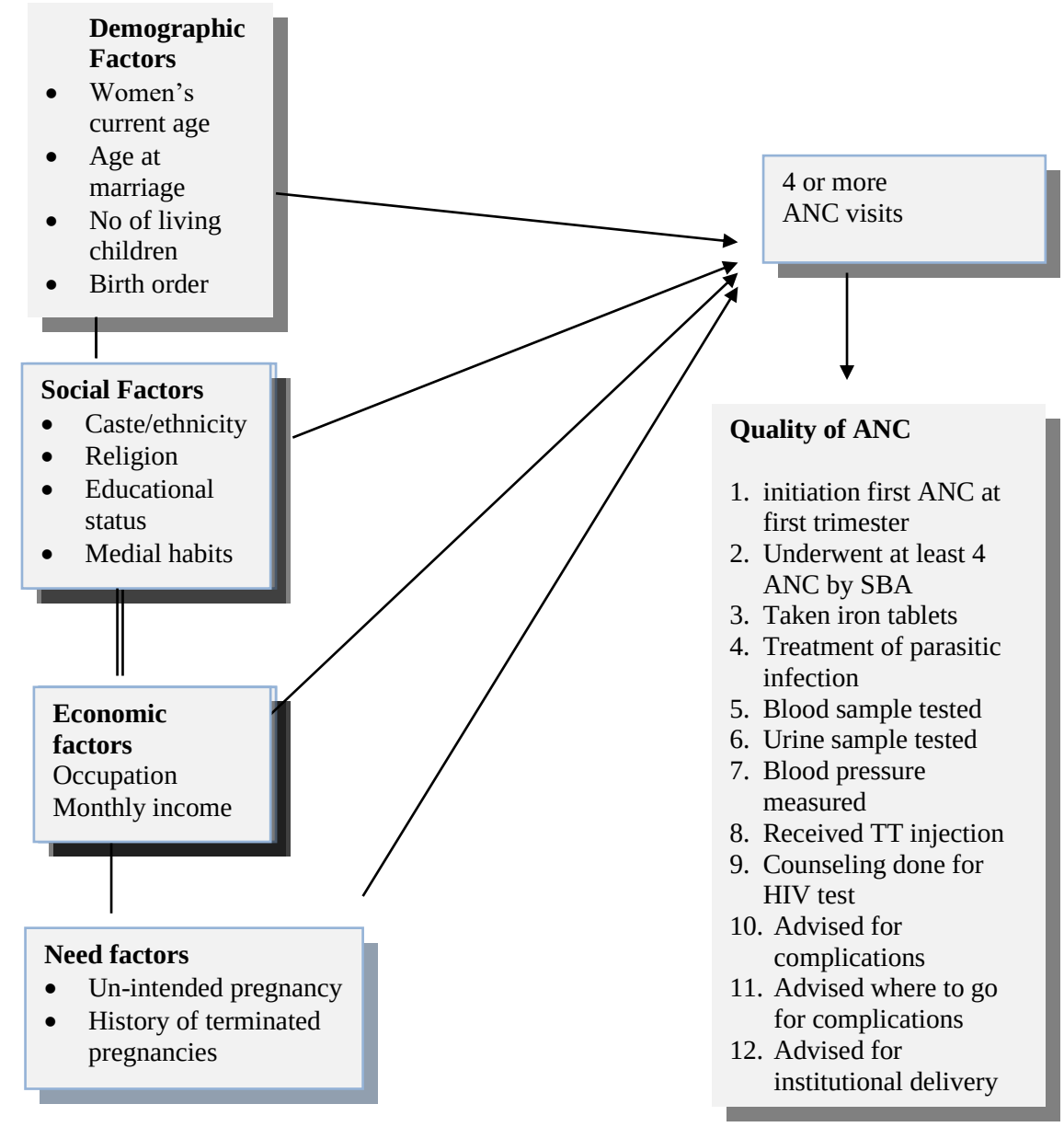


Figure 2.4: Conceptual Framework of the Study

2.3 Study Variables

2.3.1 Dependent Variables

In this study, there are two dependent variables first is the number of ANC visits. And second is the quality of ANC services received by the respondents. Respondents were asked total number of ANC visits they underwent during pregnancy. The study focused whether they have completed 4 or more ANC visits. To assess quality of ANC, we had identified 12 most essential services been received as part of the component of Antenatal care. Initiated first ANC within four months, of pregnancy, underwent at least four ANC by skilled providers (doctor, nurse or midwife), Taken iron tablets for at least 180 days during pregnancy, received drug for treatment of intestinal parasite, blood sample tested during pregnancy, Urine Sample tested during pregnancy, Blood pressure measured during pregnancy etc. (table 2.1).

Out of 12 ANC service components, a score "3' were assigned if the women had received first two very important components of ANC. (table 2.1) a score of '2' were assigned if the women were given the medicinal supplements, treatments, and laboratory or physiological measurements. (Response codes as yes=2) to these components if women received these services for at least once. Similarly score for code yes= 1 were assigned if women were given health education or counseling related components. (Table 2.1). When the total score obtained by a woman is 75th percentile or above were considered as good quality.

Table 2.1

Components of Antenatal Care and their weighted score

Item Description	Score weight	
Initiated first ANC within four months of pregnancy	3-Yes	0=No
Underwent at least four ANC by skilled providers	3-Yes	0=No
Taken iron tablets for at least 180 days during pregnancy	2-Yes	0=No
Received drug for treatment of intestinal parasite	2-Yes	0=No
Blood sample tested during pregnancy	2-Yes	0=No
Urine Sample tested during pregnancy	2-Yes	0=No
Blood pressure measured during pregnancy	2-Yes	0=No
Received two doses of tetanus toxoid	2-Yes	0=No
Received counseling for voluntary test of HIV	1-Yes	0=No
Advised for complication during pregnancy	1-Yes	0=No
Advised where to go for pregnancy complication	1-Yes	0=No
Advised for institutional delivery	1-Yes	0=No

2.3.2 Independent Variables

The independent variables in analyses included socio-demographic factors (age-group of mothers, age-group at the time of first child birth, women's education, women's employment status, husband's education, husband monthly income ethnicity, religion, women's access to media), and maternal factors (intended pregnancy, history of terminated pregnancy and number of living children). Ethnicity was broadly categorized into advantaged and disadvantaged groups based on the socio-cultural hierarchy of ethnic groups in the Nepalese context. It was classified as Brahmin, Chhetri, and Newar ethnic groups as 'advantaged groups and Dalit, Janajati, Muslim, other Terai castes and castes of 'other' group as 'disadvantaged groups' as suggested by the previous studies. Religion was broadly dichotomized into Hindus and non-Hindus. Educational attainment was divided into illiterate and literate where illiterate means having no education and literate means those who had primary or higher levels of schooling. Women were said to have access to the media if they read a newspaper, listened to the radio, or watched television at least once a week. Although a previous study defined women's autonomy as her decision-making autonomy for her healthcare, large household purchases, and visits to family or relatives, we only considered women's autonomy in terms of health care decisions. Women were said to have autonomy in health care if they responded that they usually make decisions about their health care themselves without the involvement of husband, partner, or someone else

CHAPTER III

RESEARCH METHODOLOGY

This Chapter comprises of research design, nature and sources of data, data collection procedure, data processing and data Analysis.

3.1 Research Design

It was a descriptive study; data were collected during cross-sectional period of time from 25th June to 10th July 2022, for almost 15 days. Study aimed to assess socio-demographic determinants of Antenatal services utilization among Delivery seeking Women at Manipal Teaching Hospitals of Pokhara, Nepal.

3.2 Study Area and sampling

The study was conducted at Manipal Teaching Hospital, Pokhara, Nepal. Manipal Hospital is one of the regional & tertiary hospitals of Gandaki Province which covers 11 districts namely Kaski, Lamjung, Manang, Mustang Myagdi, Nawalpur, Parbat, Syanja and Tanhun. Manipal Teaching Hospital serves both as treatment and referral hospital for people of these districts and also patients coming from other province as well. It is one of the biggest hospitals in Nepal with maximum patient flow in this region. The sample size was determined by fixing time frame from 25th June – 10th July 2022 due to resource and other technical constraints. Respondents who were at stay in postnatal ward after the child birth were interviewed. Total 321 mothers were interviewed giving sample size of 321 mothers.

3.3 Selection of Respondents

Purposive sampling was used. The selection criteria of respondents were number of women who had delivered their babies and staying in the OBG wards of Manipal Hospital during the time period from 25th June -10th July 2022.

3.4 Instrumentation

Structured questionnaires were used as data collection tool. Face to face interviews were conducted to collect ANC related data from eligible mothers of reproductive age groups. For validity and reliability, a sample of questionnaire was pretested. Primary data were collected by interviewing mothers using structured questionnaire. Mainly quantitative data were collected after refining pre-tested questionnaire.

3.5 Data collection Procedures

Data was collected using structured questionnaire. It was first prepared in English and then translated to Nepali language for reliability purpose. Finally, the questionnaire was administered in Nepali language with some minor editing. Researcher himself along with two two enumerators helped in data collection. A brief orientation was given about the questionnaire.

3.6 Data Collection and Processing

Data were collected during day time in the hospital ward using pretested questionnaire by face-to-face interviews with mothers who had delivered a baby at Manipal Teaching Hospital. Data were entered and analyzed in SPSS version 20. Data were presented into frequency distribution table as percentages in tabular form. Chi-square test was done to find the association between variables and Binary logistic regression were performed to determine association as well as impact of independent variables upon dependent variable and also to control confounders. The result was interpreted in terms of p value, confidence interval, and ODDs ratio.

3.7 Data Quality

- To ensure data quality, researcher himself interviewed and cross –checked interview to ensure its validity and reliability
- To avoid the recall bias, recently delivered mothers at wards were chosen
- Data were checked for its completeness and avoid errors and missing of any information.

3.8 Methods of Data-Analysis

Chi-square test was done to find the association of independent variables with dependent variable and Binary logistic regression were performed to study the role of independent variables with dependent variable controlling confounding. The result was interpreted in terms of p value, confidence interval, and ODDs ratio. In this study, binary logistic regression is used to analyze the net influence of set of independent variables of interest and frequencies and quality of ANC visits.

CHAPTER IV

DATA PRESENTATION AND ANALYSIS

This chapter presents background characteristics of women aged 15-49 who had delivered babies at Manipal Teaching Hospital. The chapter begins with a brief description of study population characteristics. It begins with description of some demographic variables like Age-groups of mothers, parity, no of living children, ethnicity and religion followed by education and economic characteristics of women. The chapter further includes media habits like access and utilization of radio, watching TV. In addition, rapid growth in IT sectors has provided easy access to internet, Wi-Fi, and mobile phones. Social media like Face book, YouTube, and goggle has emerged as an effective means of getting information. Hence this chapter includes access and utilization of internet i.e., social media by the respondents. Antenatal practices are measured and presented in terms of number of total ANC visits made 4 or more times during pregnancy. In addition to it, not only number but quality of ANC was also measured. For this, 12 essential services during ANC visit have been identified as crucial services component (details is mentioned in methodology chapter). Number of components utilized by mothers were assigned scores and if the individual respondents' total score were equal or more than 75^{th} percentiles, the ANC services was considered as a quality ANC service utilized by them. Logistic regression analysis was done to get the relationship of predictor independent variable and ANC visits made as dependent variable

4.1 Demographic Characteristics of Study Population

Socio-demographic factors are important determinants for ANC seeking practices. The socio-demographic factors included (current age group of mothers, women's and her spouse education and economic status, ethnicity, religion, women access to media), maternal factors (intended pregnancy, history of terminated pregnancy and number of living children).

4.1.1 Current Age and Age at Marriage

Current age of women is one of the important determinants of marriage and child-

bearing which influences their ANC seeking practices. Since older and younger women have different experiences and influence, their behavior on seeking ANC services also vary.

Table 4.1

Current Age and Age at Marriage

Descriptions		Number of mothers	Percent
Age group of mothers	15-24	150	46.7
	25-35	171	53.3
Age at Marriage	≤ 20	195	60.7
	>20	126	39.3

Source: Field survey-2022

In Table 4.1, age distribution of the women shows that 53 per cent percent of the respondents were in 25-35 age groups while 47 per cent belonged to age- group of 15-25. The NDHS 2011 result shows that marriage occurs relatively early in Nepal. However there has been little rising trend in age at marriage. In this study about 61 per cent of mothers got married by the age of 20. (Table: 4.1).

4.1.2 Pregnancy and Child Bearing

Child-bearing in Nepal starts at very early age. Childbearing age determines the risk and need of ANC visit. Studies have suggested that parity influences initiation of ANC, as parity increases, the experience of timely initiation of ANC decreases High parity women might tend to rely on their experiences from previous pregnancies and not feel the need for antenatal care. Women with higher age may have greater level of experience; these women might feel more confident during pregnancy and consider antenatal care to be less important.

Table 4.2

Pregnancy and Child Bearing

Description	class	Number of mothers	Percent
Number of living children	≤2 children	255	79.4
	> 2 children	66	20.6
Total		321	100

Source: Field survey-2022

Table 4.2 reveals that majority of mothers (79%) had 2 or fewer children

4.1.3 Religion and Ethnicity

By religion great majority of Nepal's population have remained the followers of Hindu. Nepal is well known for its caste/ethnicity and cultural diversity. In this study, about 68 per cent comprise of Brahmin, Chhetri and Newar (Advantaged group) while 32 per cent of mothers belonged to Dalit, Janajati, Muslim and other terai caste (Disadvantaged group). Similarly, majority of respondents were follower of either Hindu or Buddhist Religion (Table 4.3).

Table 4.3

Religion and Ethnicity

Description	class	Number of mothers	Percent
Ethnicity	Advantaged	219	68.2
	disadvantaged	102	31.8
Religion	Hindus	249	77.6
	Non-Hindus	72	22.4

Source: Field survey-2022

4.1.4 Educational and Economic Status

Mother's health care seeking behavior is more likely influenced by her education. Education makes women aware of the effects of poor health and makes them understand the demand and utilization of ANC services. Table 4.4 reveals that, around 30 per cent of women had undergone secondary education as compare to their husbands which is 56 per cent.

Table 4.4

Educational and economic status of the Respondents

Descriptions	class	Frequency	Percent
Education of Respondents	≤ primary	225	70.1
	≥ secondary	96	29.9
Education of spouse	≤ primary	143	44.5
	≥ secondary	178	55.5
Employment of Respondents	Employed	119	37.1
	Unemployed	202	62.9
Monthly income of spouse	≤ 25,000	212	66.0
	>25000	109	34.0

Source: Field survey-2022

In addition, the study has given more concern to assess whether the respondent is employed or unemployed rather than assessing their types of occupation. It is assumed, if women are employed means they have earning and are more likely to save money, that makes them less dependent on spouses and other family members to take their own decision. Table 4.4 reveals that only 37 per cent of women were involved in income-generating works. Monthly income of the household (spouse) is another major determinant for health seeking behavior. The study reveals that Majority (66%) of respondents' spouse had an average income which was around 25,000/month (Table 4.4)

4.1.5 Media Habits

For last few decades, people had choices from three mass-media to receive information on various aspects including health services as well. Around four decades ago Radio Nepal followed by local FM was started to disseminate news and message that could be reached and listened to almost every part of Nepal. It is an effective first mass media that could reach to every individual house and still it is used as an efficient, cost effective and feasible method to get information even to most inaccessible and hilly region and in places of Nepal and where there is no electricity and has power cut. Similarly, Television has also been used in Nepal since decades which are one of the effective forms of audio-visual aid to convey knowledge to people. It can be affordable by almost every Nepalese.

Table 4.5

Respondents Media Habits

Descriptions	class	Frequency	Percent
utilization of TV/FM/Radio	No	25	7.8
	yes	296	92.2
utilization of social media(internet)	No	182	56.7
	yes	139	43.3

Source: Field survey-2022

Table 4.5 shows that majority 92 per cent of respondents have access to and utilize radio/FM/TV as a source of information while 43 per cent mothers have access to internet/Wi-Fi and utilize social-media platform to get information

4.1.6 Maternal Factors Influencing ANC Visit

Unintended pregnancy is associated with late initiation and inadequate use of antenatal care services. Hence, women who report an unintended pregnancy should be targeted for antenatal care counseling and services to prevent adverse maternal and perinatal outcomes. Around 64 per cent mothers had intended pregnancy as compare to mothers who had conceived un-intently (36%), Similarly history of previous miscarriages or abortion increases the likelihood to receive more and quality ANC checkups. The results reveal that around 38 per cent mothers had history of terminated pregnancies. Table

Table 4.6

Maternal Factors Affecting ANC

Descriptions	class	Frequency	Percent
Intended Pregnancy	no	116	36.1
	yes	205	63.9
History of Terminated pregnancies	No	203	63.2
	yes	118	36.8

Source: Field survey-2022

4.2 Antenatal Care Utilization

Antenatal care allows for the management of pregnancy, detection and treatment of Complications, and promotion of good health. However, women rarely perceive childbearing as problematic and therefore do not seek care which affects the utilization of maternal services, including ANC services. WHO has recommended for at least 4 and maximum 8 ANC visits, for normal pregnancy to avoid any complications and to address any health problem to fetus and mothers timely

4.2.1 Number of 4 or more ANC visits

In this study, total 259 mothers i.e. (81%) had utilized 4 or more ANC in their recent pregnancy. The rest 19 per cent women had less than 4 ANC visits. (Figure 4.7)

Table 4.7

Number of ANC visits by the Respondents

Description	Frequency	Percent
< 4 ANC visits	62	19.31
≥4 ANC visits	259	80.79
Total	321	100

Source: Field survey-2022

4.2.2 Socio-Demographic Factors Affecting ANC Visits

Five variables were positively associated with the number of ANC visits in bi-variate logistic regression analysis revealed that: the number of living children, educational status of women and her spouse, employment status of women, monthly income and use of media had significant association with ANC visits. Women were more likely to visit 4 or more ANC who had at least secondary level education. Similarly women who had some kind of earnings utilized more ANC than unemployed women. The ODDs of seeking 4 or more ANC visits were 9 times more among those women whose husbands' monthly income were more than 25,000 as compare to those who had income less than 25,000 NRS/Month (CI 1.02-83). Women who had access to media (TV/radio) were expected to have 10 times as many ANC visits compared to those who had no access to media (OR=10.5, CI, 1.1-99.9 There was no any significant difference in the number of ANC visits on the basis of socio-demographic variables such as family size, religion, intended pregnancy, and previous history of terminated pregnancy (Table 4.8)

Table 4.8
Correlates of 4 or more ANC visits

Variables	classification	N	≥ 4 ANC	%	sig	OR	CI (95%)
Age-group	15-24	150	137	91.3	----------		
	25-35	171	88	51.5	1	0.05	----------
Age of mothers at first child	<20	195	120	61.5			Ref
	>20	126	105	83.3	0.06	4.16	0.93-18.6
Number of living children	≤2	255	197	77.3			
	≥ 2	66	28	42.4	0.04	0.15	0.02-0.93
Education respondents	≤ primary	225	143	63.6			Ref
	≥ secondary	96	82	85.4	0.02	0.15	0.03-0.72
occupation of respondent	employed	119	99	83.2			Ref
	unemployed	202	126	62.4	0.02	0.15	0.03-0.72
income of spouse	≤25,000	212	129	60.8			
	>25000	109	96	88.1	0.05	9.19	1.02-83
Internet use	No	182	99	54.4			
	yes	139	126	90.6	1	0	----------
TV/radio use	no	25	1	4			Ref
	yes	296	224	75.7	0.04	10.54	1.11-99.9

Source: Field survey-2022

4.3 Quality of ANC Services Received

Twelve essential services during ANC visits were asked by the mothers in terms of yes/no questions (Table 4.9) and a composite index score were calculated. Each response were given number from 3 -1 depending upon significance of the service components. Positive response for first two components received were given '3 points' which were i) starting the first ANC visit in the first trimester and ii) had at least four ANC visits by skilled providers. Similarly score of '2'were assigned to the further components received like medicinal supplements, treatments, and laboratory or physiological measurements. And score of '1' was given to the components related health education or counseling. If the sum of all total response of individual mothers were 75 or above than it was defined as 'good quality ANC'.

4.3.1 Services Received During ANC Visits

During the last pregnancy, there was a wide variation in the proportion of women who received various components of ANC. Some components were widely utilized by women. For example, more than 9 in 10 women received two doses of tetanus toxoid

during the ANC visit (93%). Similarly, blood pressure measurements another component of ANC that was commonly received by women during their ANC visits (93%). The majority of pregnant women (89%) received the first ANC within four months of pregnancy. Around 92.5 per cent mothers were advised for complications management by health workers while almost every mother who attended ANC clinics were advised where to go in emergency. In contrast, some components of ANC were less commonly received. For example, about one in ten women received counseling for a voluntary HIV test (65%). More than 70 per cent of women received folic acid /iron tablets for at least 180 days, received anti-parasitic drugs, blood and urine checked to detect hemoglobin level, infection, protein level and general RBD and WBC counts.

Table 4.9

Component of ANC received by mothers

ANC components	Frequency	Percent
initiated first ANC within 4 months of pregnancy	287	89.4
underwent at least 4 ANC by SBA	217	69.5
taken iron tablet for at least 180 days	245	76.3
Received drugs to treat intestinal parasites	238	74.1
Blood samples during pregnancy	238	74.1
Urine sample test during pregnancy	238	74.1
BP measured	297	92.5
received 2 doses of TT vaccination	297	92.5
received counseling for voluntary test for HIV	209	65.1
advised for complications during pregnancy	297	92.5
advised where to go during complications	315	98.1
advise given for institutional delivery	238	74.1

Source: Field survey-2022

4.3.2 Quality Score of ANC

The study identified 12 services to assess quality of ANC services received during the visits. (Table 4.9).Each component was given appropriate score according to its importance from 3-1. After calculating the total score, the percentile rank for each woman, the good quality ANC was considered if the total score obtained by a woman was at 75^{th} percentile or above (17-19)

Table 4.10

Score percentage to assess good quality of ANC

Score	Frequency	Percent
0	6	1.9
1	17	5.3
2	1	0.3
9	50	15.6
10	1	0.3
11	7	2.2
14	1	0.3
16	1	0.3
19	23	7.2
21	30	9.3
22	184	57.3
Total	321	100.0

Source: Field survey-2022

Table 4.10 presents frequency distribution women having specific score. The score equal or greater than 22 was equivalent to 75 percentiles .57.3 per cent of mothers had good quality of ANC while 43 per cent were considered to have poor quality ANC, Table 4.11.

4.3.3 Good Quality of ANC Services Received

Table 4.11

Good quality of ANC services

Quality of ANC	Freq	Percent
≥75 percentile (Good quality ANC)	184	57.3
< 75 percentiles (Poor quality ANC)	137	42.7
Total	321	100.0

Source: Field survey-2022

4.3.4 Associations of Good Quality of ANC with Socio-Demographic factors

The study result demonstrated that only 57 per cent of mothers received good quality ANC. The main predictors for good quality ANC in this study were age-group of mothers, ethnicity, spouse education, family type, use of media and intended pregnancies. The study revealed that is advantaged ethnic groups were less likely to have good quality ANC as compared to advantaged ethnic groups. Our study revealed that Quality of ANC among women was more whose spouse had undergone secondary and higher secondary education. Similarly, women from nuclear family had 3.5 times more likely to have Good ANC than women living in joint or extended family.

Table 4.12
Correlates of Good quality of ANC

			Good Quality ANC				
Variables	No of mothers		count	%	sig	ODR	CI (95%)
Age group	15-24	150	98	65.3	0.02	29.04	1.88-447.7
	25-35	171	86	50.3			
Age at first child	<20	195	102	52.3			
	>20	126	82	65.1	0.22	1.77	0.71-4.39
Ethnicity	Advantaged	219	113	51.6			
	disadvantaged	102	71	69.6	0.03	2.91	1.08-7.8
Religion	Hindu	249	163	65.5	0	0.02	0.01-0.11
	Non -Hindus	72	21	29.2			
Education of respondents	≤primary	225	119	52.9	0.41	0.68	0.27-1.71
	≥secondary	96	65	67.7			
Education of spouse	≤primary	143	72	50.3			
	≥secondary	178	112	62.9	0.01	0.24	0.08-0.70
Employment of respondent	employed	119	91	76.5			
	unemployed	202	93	46	0.85	0.91	0.37-2.29
monthly income	0-25,000	212	115	54.2			
	>25000	109	69	63.3	0.21	2.22	0.64-7.73
Number of living children	≥2	255	181	71			
	>2	66	3	4.5	0	0.03	0.01-0.16
family type	nuclear	200	136	68	0.02	3.51	1.27-9.69
	joint	121	48	39.7			
use of TV/radio	no	25	1	4			
	yes	296	183	61.8	0.04	13.08	1.15-149
use of internet	No	182	68	37.4			
	yes	139	116	83.5	0.04	1.89	0.38-9.42
intended pregnancy	no	116	32	27.6			
	yes	205	152	74.1	0.01	25.89	2.3-288.9
history of terminated pregnancy	No	203	75	36.9			
	yes	118	109	92.4	0	78.83	12.42

Source: Field survey-2022

Mothers who used mass media like TV/FM/Radio had 13 times more odds of receiving quality ANC care than those who did not use. Unlike mothers who had access to social media had 1.9 times more odds of receiving quality ANC. (p=0.03. ODR= 1.9, C.I -95%, 0.38-9.4). Result further reveals that women with the aim of intended pregnancy were 25 times more likely to receive good quality ANC.

CHAPTER V

MAJOR FINDINGS, SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Major Findings

5.1.1 Quality of ANC Services Received

81 per cent of women visited 4 or more ANC visits among which 57 per cent received good-quality of ANC services. Adhikari et al, in 2006 found 70.4 per cent coverage for (ANC +4) visits out of which 21 per cent received good quality ANC services. Similarly in another study 71 per cent women completed 4 ANC visits and only 52 per cent of them received good quality of ANC services (khatri et al, 2022). The trend of having high coverage and low quality ANC were also been reported in the studies conducted in Bangladesh (Randive, 2013) and other LMICs (lower middle income countries) of South Asia and Sub Saharan Africa (Leslie, 2017, Hodgins, 2014). The reasons behind relatively low converge may be due to difficulties in reaching health facilities , lack of skilled trained health workers, unavailability or shortage of essential medicines and equipment and clearly defined guidelines/standards for MNH services (Khatri ,2018,).From 2016 onwards, WHO recommended total eight ANC visits in compare to earlier 4 ANC visits as evidence suggests higher frequency of ANC contacts by skilled health provider are associated with a reduced likelihood of stillbirths (WHO,2019).Emerging evidence in maternal and newborn health show that improving coverage of health services has limited effect on health outcomes if the quality of care is poor (Godlonton and Okeke 2016; Ng et al. 2014; Okeke and Chari 2015). Some of the essential components of ANC services as suggested include measurement of blood pressure, urine/blood tests, TT injection, iron/folic supplementation, counseling for complications management and danger signs etc. which is crucial for healthy pregnancy and birth outcome (Owili, 2019)

5.1.1.1 Components of ANC Services utilized

This study demonstrated that only 57 per cent women received good quality ANC which is consistent with the findings of NDHS 2011 survey where it was 24 per cent. Likewise, further analysis of the population-based national survey in India showed

less than 25 per cent of women received good quality ANC. In our study the components of ANC received by the majority of women included use of two or more doses of tetanus toxoid, measurement of blood pressure done, and an ANC visit performed within the first four month of pregnancy. Our studies found 93.6 per cent of women received two or more doses of TT injection was higher in percentage than the findings from further analysis of NDHS-2011 where it was 86.2 per cent. Similarly, the coverage of rest of components of ANC in our study was also higher than NDHS. However, women receiving voluntary HIV counseling in secondary analysis of Nigerian Demographic Health and Household Survey of 2013 (41.7%) while in our study it was only 65 per cent. Low coverage of HIV counseling in our study may be due to inadequate training to health workers and lack of a widespread availability of HIV testing materials. Similar to our finding, Joshi et al. demonstrated that, in the 2011 NDHS study. Our study revealed that blood pressure measurements were done by 93 per cent of women and 89 per cent women initiated their first ANC within first four months of pregnancy and 65 per cent received counseling for HIV test. More than 70 per cent of women received iron tablets for at least 180 days, socio-demographic characteristic of mother like current age, ethnicity, spouse education, family type and media using habit had significant association with various components of ANC services utilization. Disadvantaged ethnic groups were less likely to have good quality ANC as compared to advantaged ethnic groups, consistent with our study finding, in which socially disadvantaged castes of other groups were less likely to have adequate ANC compared to the advantaged castes in a similar study conducted in India. Such findings may be due to a low level of awareness among disadvantaged ethnic groups; a study in the most disadvantaged ethnic group in Nepal revealed that the women in this group viewed antenatal visits as unnecessary, thinking pregnancy as a normal phenomenon that do not require health care visitation. Women whose spouse had secondary or higher education had more odds of number of ANC visits. Women from nuclear family were 3.5 times more likely to have used good ANC services than women living in joint or extended family. Mothers who had access to mass and social media like TV/FM/Radio/internet had 13 times more odds of receiving quality ANC services with those who didn't. Result further reveals that women with intended pregnancy were 25 times more likely to receive good quality ANC. Our result demonstrating 81 per cent of the women receiving ≥ 4 ANC visits is higher than the ≥ 4 ANC visits of 70 per cent reported by Adhikari et al and 66.7 per

cent in the study conducted in Chitwan. ANC (+) coverage in NDHS survey, 2016 was 70 per cent where as in 2022 it was 81 per cent, consistent with our study (MOHP, 2011, 2007) similarly our neighboring countries India (2015), Bangladesh (2014) and Afghanistan (2015) have quite less ANC coverage of 50 per cent, 31.3 per cent and 16.5 per cent respectively (NFHS-4, 2015–16, NIPORT M, ICF, 2014, Azimi, 2019).

5.2 Socio-Demographic Factors Associated With 4 or more ANC visits

With regards to socio-demographic factors and use of ANC services our study found mother's education, husband monthly income (>20,000) and use of mass media (TV/radio/internet) in particular exert significant influence for ≥4 ANC visits. ($p<0.05$, C.I 95%). Women with secondary education had more ANC visits ($p=0.02$). Adhikari et al, in 2016 too revealed educational status as important determinants for ≥4 ANC coverage particularly husband if educated get motivated their wives for ANC usage. Joshi and colleagues found higher tendency of ANC visits if both husband and wife are educated. (Joshi et al). Ethiopian Demographic and Health Survey (EDHS) (Yaya, 2017) and Bangladesh Demographic and Health Survey (BDHS, 2014) also demonstrated a similar positive association between women's educational level and four or more ANC visits. In another study women who were educated and were able to read and write attended antenatal care more often than women without formal education (Chanda et al., 2020).

Previous studies' also support these findings (Bintabara, 2013). Evidence suggests, educated women are relatively employed, hence are able to take their decision independently (Shitie et al., 2020). Educated women are also likely to strive for better quality services and a better ability to use health services that provide better care (Zhang et al., 2020). Household wealth is another socio-economic factor which plays significant role to get access to any kind of services including ANC. Our study indicated that women whose spouse's monthly income was (>25,000) were 9 times more likely to visit ANC than with those having lower income. The findings of 2011 and 2016 NDHS survey also showed household wealth index being as important determinant for more ANC revealing that the women belonging in the richest wealth quintiles had three times higher the odds of receiving four ANC compared to the

poorest wealth quintiles. The further analysis of the demographic survey in Bangladesh, Afghanistan, India, and Ethiopia also showed higher odds of four or more ANC visits among women of a higher wealth index compared to those who had lower wealth index. The next important determinant in our study for 4 + ANC visits was access to mass- media. We found that women who had access to (TV/radio/social media) were expected to have 10 times more ANC visits compared to those who did not have (OR=10.5, CI, 1.1-99.9). Radio listening was associated with increase in >ANC visit (Pokharel, 2020) similar to our findings. A recent study on the impact of mass media on antenatal care in rural Nepal reported a positive association between exposure to mass media (radio being most popular medium, followed by television) and the uptake of antenatal care. Consequently, Acharya et al. advocated increasing the awareness of rural women through mass media to help improve the utilization of antenatal care in Nepal. Our study showed that 60 percent and 43.1 per cent of the respondents had exposure to radio and television at least once a week, respectively. These figures are relatively high compared to national figures collected by the 2011 NDHS, where around the country 44 per cent of women are estimated to listen to the radio, and 47 per cent watch television at least once a week. Such an increase in the exposure status can be attributable to growing numbers of radio stations and television channels which have been recently established in the Terai corridor of Nepal. We also found that mass media had positive impact on the utilization of various ANC components and increased frequency of antenatal visits.

5.3 Summary of Findings

Significant percentage respondents had attended antenatal care during their pregnancy. In Nepal, the use of maternal health services depends on the socioeconomic status of women. Women with higher socioeconomic status in education, wealth, benefit from better health services, including maternity care. Educated young women whose husbands were also educated lived in urban areas held non-farm jobs and fell into wealthier quintiles, more likely to have participated in four or more ANC and receive top-quality ANC.. The educational level of the respondents and the occupation of their partners were largely linked to the use of antenatal care This may be due to increased awareness, access to services, and understanding of service use by participants in this study. In summary, all of these factors that

increased antenatal use in the current study, i.e. education level, frequency of radio listening, were statistically associated with antenatal use. Study participants who were educated and were able to read and write attended antenatal care more often than women without formal education. The possible rationale for this finding could be that more educated mothers who tend to use antenatal care have a better understanding of information and better understand the importance of the service. In addition, educated women are more likely to improve their independence, self-confidence, and their ability to make decisions about their health. Educated women are also likely to strive for better quality services and a better ability to use health services that provide better care According to this finding, antenatal care services were used more by women with an affluent wealth index than women in the quintile with the poorest wealth. In terms of listening habits to the radio, study participants who listened to the radio often visited more antenatal care than their counterparts.. Very few studies focus on the quality of antenatal care in low-income countries like Nepal, Our studies found 93.6 per cent of women received two or more doses of TT injection women receiving voluntary HIV counseling in our study it was only 65 per cent. blood pressure measurements were done by 93 per cent of women and 89 per cent women initiated their first ANC within first four months of pregnancy. 70 per cent of women received iron tablets for at least 180 days, socio-demographic characteristic with various components of ANC services utilization

5.4 Conclusion

Despite high proportion of four or more ANC visits among Nepalese women, the study found only fewer percent of women receiving good-quality ANC services. As evidence suggests that to have healthy pregnancy and its outcome not only increased number of ANC visits is essential but quality of ANC services being provided also matters a lot. In this study, we found not only increased frequency of ANC visits, but also receiving quality of ANC both was associated with socio-demographic factors. Specifically in this study were ethnicity, educational status and spouse’s monthly income. Exposure to mass media also had significant role to push women to complete 4 or more ANC visits.

5.5 Recommendations

Receipt of Quality ANC services implies that every pregnant woman must have completed at least 4 ANC visits and received all essential service components according to maternity guidelines, at first , second and third trimester of pregnancy respectively. More focused interventions directed to disadvantaged, uneducated and economically poor women are prerequisite. The quality of ANC services been provided can be improved through proper training of health care providers, making availability of necessary drugs, vaccine, and testing laboratories. Health facilities infrastructure should have adequate rooms, staffs, privacy, and availability of clean drinking water, toilet and waiting rooms facilities

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APPENDIX I

SURVEY QUESTIONNAIRE

Namaste! I am Meraj Ahmad, for my academic requirement I am conducting a research entitled. **"**Socio-Demographic Determinants of Antenatal Services Utilization: A Study among Delivery Seeking Women in Selected Hospitals of Pokhara, Nepal" For this I am collecting data with mothers about their ANC experiences I will ask you few questions on antenatal care practices. The data given by you will be confidential, so you are free to participate or reject to answer. Without your consent, I will not proceed forward. Would you be willing to participate in this survey?

1. Yes. 2.No

If yes, proceed, if no leave that house and go to next house

Background information:

Date of interview: Interviewee Name:

Name of interviewee:

Address:

Section –A

Socio-Demographic and Media Habit Related Questions

1	Can you tell me how old are you?	i) 15-24 ….……..0 ii) 25-35……1 iii)>35……..……..2
2	What was your age at marriage?	i. ≤20 years …….....0 ii. >20 years……..1
3	How many children do you have excluded this birth?	i. ≤ 2 ……...0 ii. > 2……1
4	What is your caste/ethnicity?	i. Disadvantage……0 ii. Advantaged……..1
5	what is your educational attainment?	i.Illiterate…….……0 ii. ≤primary…..……..1 iii. ≥ secondary……..2
6	What is your spouse educational attainment?	i. Illiterate……..……0 ii. ≤primary……..1 iii ≥ secondary……..2
7	Do you work somewhere before pregnancy?	i) Yes…….……..1 ii) No…….…… 0
8	If, yes, did you get salary?	i) Yes……..1 ii) No…….....0
9	Are you in leave and wish to join again?	i) Yes……..1 ii) No……...0
10	Does your spouse have income generating employment at present?	i) Yes……..1 ii) No…… 0
11	If yes, you don't mind can you tell me your spouse tentative monthly income?	i) ≤ 25000/month…….....0 ii) > 25000/month…….. .1
12	Do you have access to TV/Radio/FM?	i) Yes…….……1 ii) No ……..0
13	If yes, do you watch or listen?	i) Yes ……..……1 ii) No ……..……0
14	Do you have access to internet?	i) Yes……..…..... 1 ii) No…….....0
15	If yes, do you use YouTube, Facebook or another platform through internet?	i. Yes …….……1 ii. No ……. ……. ..0
16	how many times did you visit for Antenatal checkups for recent pregnancy?	i. <4 ……..... 0 ii. ≥4 ……..…….....1

Questionnaire

Section –B

Quality of ANC Related Questions

01	Did you got ANC checkup (within 4 months)	i) ii)	Yes …….3 No ……..0
02	Have you undergone at least 4 ANC by skilled birth attendants?	i) ii)	Yes……..3 No…….....0
03.	Had you taken iron tablets for at least 180 days?	i) ii)	Yes …….2 No ……..0
04	Were you given medicine for parasitic infection?	i) ii)	Yes …….……2 No ……..0
05	Did the health worker take your blood sample for various tests?	i) ii)	Yes ….……2 No ….……0
06	Did your blood sample tested?	i) ii)	Yes …….2 No…….....0
07	Did your urine sample tested?	i) ii)	Yes….……2 No……...0
08	Were your B.P measured?	i) ii)	Yes….……2 No….……..0
25	Did you receive 2 does of TT injection?	i) ii)	Yes….……2 No….……..0
26	Did your health worker advise you to have test for HIV?	i) ii)	Yes….……1 No….……..0
27	Did your health worker explain you on danger signs of pregnancy or signs of complications/?	i) ii)	Yes…….……1 No….……..0
28	If so, did he/she advise where to go, if you get any of explained symptoms?	i) ii)	Yes….……1 No….…….....0
29	Did your health worker advise you to have a delivery in hospital?	i) ii)	Yes….……1 No….……...0