ปัจจัยที่มีผลต่อการใช้บริการดูแลการตั้งครรภ์ในประเทศภูฏาน

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FACTORS AFFECTING THE UTILISATION OF ANTENATAL CARE IN BHUTAN

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เมื่อไม่นานมานี้ ภูฏานได้แสดงให้เห็นถึงความก้าวหน้าในการลดอัตราการตายของมารดาด้วยวิธีต่างๆ ได้แก่ การเพิ่มจำนวนสถานบริการคลอด การเพิ่มสัดส่วนการทำคลอดโดยเจ้าหน้าที่สาธารณสุข และการจัดให้มีบริการที่ครบวงจรและเพียงพอ ที่ดูแลมารดาตั้งแต่ตั้งครรภ์ ขณะคลอด และหลังคลอด ข้อมูลจากการสำรวจสภาวะสุขภาพแห่งชาติของประเทศภูฏาน พบว่า ในปี 2543 ร้อยละ 51 ของมารดามีการฝากครรภ์ โดยสัดส่วนดังกล่าวเพิ่มขึ้นเป็นร้อยละ 89 ในปี 2553 คิดเป็นอัตราเพิ่มกว่าร้อยละ 71 อย่างไรก็ตาม แม้ว่าร้อยละที่ฝากครรภ์ของมารดาจะเพิ่มสูงขึ้นอย่างรวดเร็ว แต่ยังมีหญิงตั้งครรภ์อีกกว่าร้อยละ 11 ที่ยังไม่เข้ารับบริการการฝากครรภ์ แม้ว่าการให้บริการดังกล่าวจะไม่เสียค่าบริการก็ตาม

การศึกษานี้มีวัตถุประสงค์เพื่อชี้ให้เห็นถึงปัจจัยทางประชากรและปัจจัยทางเศรษฐกิจและสังคมที่มีผลต่อการเข้ารับบริการการฝากครรภ์ในประเทศภูฏาน โดยใช้ข้อมูลสภาวะสุขภาพแห่งชาติของประเทศภูฏานปี 2555และวิธีวิเคราะห์ด้วยสมการการถดถอยแบบโลจิสติก พบว่าปัจจัยที่มีผลต่อการเข้ารับบริการการฝากครรภ์ ได้แก่ อายุของมารดา จำนวนบุตร สถานภาพการทำงาน และภูมิภาคที่อยู่อาศัย สำหรับข้อเสนอแนะเชิงนโยบาย รัฐบาลควรให้ความรู้เรื่องการอนามัยเจริญพันธุ์นอกสถานศึกษา โดยเฉพาะในที่ทำงาน ตลอดจนการออกหน่วยเพื่อประชาสัมพันธ์และให้ข้อมูลเกี่ยวกับประโยชน์ของการฝากครรภ์ให้ประชาชนได้รับทราบ เพื่อให้ผู้หญิงทุกคนที่อยู่ในวัยเจริญพันธุ์ในประเทศภูฏานจะสามารถเข้าถึงบริการด้านการดูแลการตั้งครรภ์ได้มากขึ้น

สาขาวิชา ประชากรศาสตร์ ลายมือชื่อนิสิต .....

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PEMA DECHEN: FACTORS AFFECTING THE UTILISATION OF ANTENATAL CARE IN BHUTAN. ADVISOR: ASST. PROF. WIRAPORN PHOTHISIRI, Ph.D., 93 pp.

In recent years, Bhutan has shown its progress in improving maternal death. Several measures were taken under the Reproductive Health Programme. These included increasing institutional deliveries, increasing the proportion of birth attendants by skilled health workers and providing adequate antenatal, intra-partum and post-natal care. In 2000, 51 per cent of mothers reported to receive ANC (NHS, 2000). This percentage increased dramatically to 87.9 per cent within 10 years (BMIS, 2010). Despite this, 11 per cent of mothers still do not receive care during pregnancy, although the service is free.

The main purpose of this study is to address the issue of non-utilization of antenatal care services among Bhutanese women. Association between demographic, socio-economic, and community characteristics of a woman and utilization of antenatal care were explored. Binary logistic regression was used to examine the effect of independent variables on the utilisation of antenatal care. Using Bhutan Living Standard Survey database of 2012, the study found that the impeding factors are maternal age, parity, work status and region. Pregnant women who are older, have higher parity, currently not working and residing in Central and Eastern regions are less likely to use the antenatal care. In order to ensure better utlisation of antenatal care services by all Bhutanese women of reproductive age, the government must prioritize formal education enrollment and provide caravan services in every annual gathering and disseminate information about the benefits of antenatal care.

Field of Study: Demography Student's Signature .....

Academic Year: 2013 Advisor's Signature .....

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Pema Dechen

CONTENTS

Page

Page

List of Tables

List of Figures

CHAPTER 1

INTRODUCTION

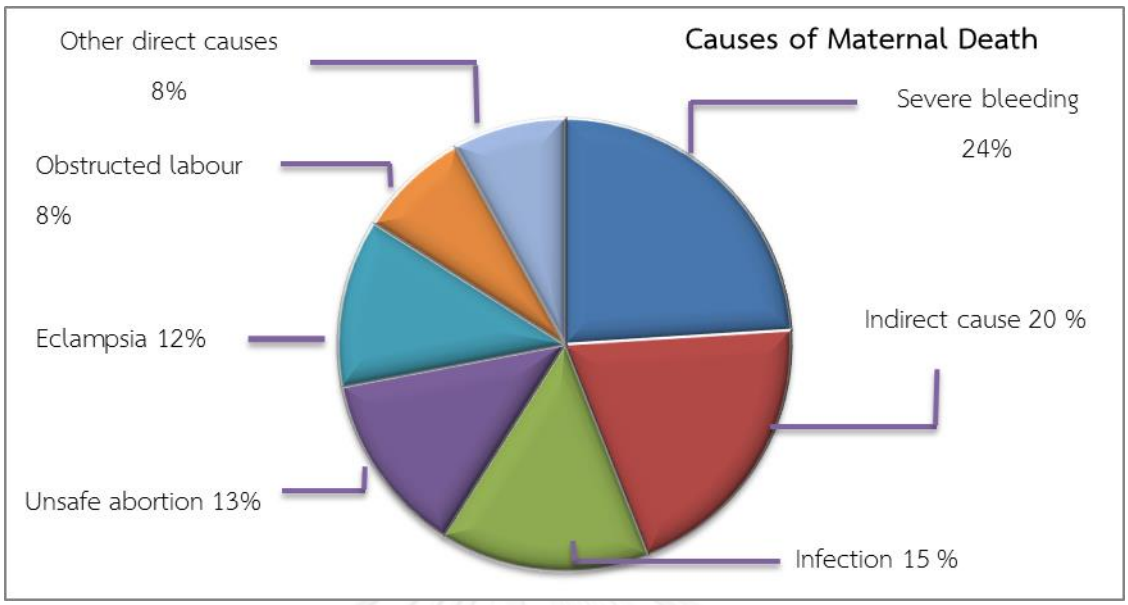
1.1 Background of the study

Each year 536,000 women aged between 15-49 die during pregnancy and child birth and 99 per cent of these deaths occur in developing countries revealing the greatest disparity between developed and developing countries (WHO, 2009). Similarly, in a day around 1,400 women die from problems related to pregnancy and childbirth ("Safe Motherhood," 2002). Maternal deaths are normally attributed to inadequate utilisation of health care and proper guidance during pregnancy. It occurs either because of abortion, hemorrhage, hypertensive problem during pregnancy, violence and other indirect diseases such as HIV/AIDS, malaria, etc., (*Millennium Development Goals Report*, 2010).

All women are at risk of developing complications during pregnancy, during delivery and after delivery. They remain under the risk of complication during the entire period of pregnancy. At the same time babies are at higher risk. Every year, around four million infants die in the first 28 days after birth out of which more than one quarter of these neonatal death occur in the first 24 hours after birth and about three quarters in the first week after delivery (Save the Children Federation, 2001; Lancet 2005). A common factor in these deaths is the health of a mother.

Studies revealed that one of the leading causes of maternal death during pregnancy and child birth is obstetric hemorrhage (Garg, 2006; "Postpartum Hemorrhage: A Challenge for Safe Motherhood," 2006). Causes of maternal death are categorized into two, i.e., direct and indirect causes (Amy O. Tsui, Judith N. Wasserheit, & Haaga, 1997; Garg, 2006; "Postpartum Hemorrhage: A Challenge for Safe Motherhood," 2006). Direct causes are those which occur only during pregnancy and the peripartum period such as, obstetric hemorrhage, puerperal sepsis, unsafe abortion, hypertensive disorders, obstructed labour, and anemia. Indirect causes are those that are altered by the pregnancy but may have been present before pregnancy such as diabetes, malaria, HIV/AIDs, or hepatitis (Garg, 2006). As a result, direct causes are known to have the major causes for maternal death.

Figure 1: Global causes of maternal death



** Note: Figure is adapted from safe motherhood ("Postpartum Hemorrhage: A Challenge for Safe Motherhood," 2006)

Other determinants such as consuming alcohol, drugs, smoking, and pollution are found to be harmful to both mother and babies resulting to neonatal and infant mortality. Around 20 per cent of all infant deaths could be avoided if all pregnant women smokers stopped smoking by the 16th week of pregnancy. However, according to Safe Motherhood (2002), pregnant women should refrain from smoking and other pollutants as they are harmful for both the mother and the foetus. Similarly, 70 per cent of children are estimated to suffer from respiratory problems. Hospitalisation due to pneumonia in year one is 38 per cent higher amongst infants and has an even higher risk of 5 times more of sudden death syndrome (SID) (cited in, Indoor Air Pollution: Children's Health and the Environment July 2008).

The maternal health services have two components: *preventive and curative.* Preventive care services looks into antenatal care, delivery care and postpartum care while curative looks into maternal complications (Arif, 2005). Maternal and infant mortality can be reduced if some preventive measures are taken by accessing health centres and utilising maternal care services. The empirical evidences suggest that, ensuring universal access to skilled attendance at childbirth, emergency obstetric care, postpartum care, preventing unsafe abortion, and widening contraceptive choices are some of the interventions that reduce maternal mortality and morbidity (WHO, 2009).

These related mortalities are preventable if mothers seek proper antenatal care from the professional health care provider and fulfill the prescribed care as advised by their health care givers. Antenatal care is one of the main components for the reduction in maternal, neonatal, and infant mortality. The period of antenatal is very important for both mother and child. Antenatal care helps prevent health problems of a mother throughout the pregnancy course and promotes a healthy lifestyle for both mother and child. One of the most important benefits of the antenatal care is provision of information about the obstetric management and link to sources of care (Amy O. Tsui et al., 1997). Therefore, women learn the importance of receiving antenatal care, how to identify danger signs, plan for emergency referrals, and choose safe birthing options through antenatal care.

Antenatal care is a comprehensive health supervision of a pregnant woman from first visit till the time of delivery. According to World Health Organization (WHO), antenatal care includes recording medical history, assessment of individual needs, advice and guidance on pregnancy and delivery, screening tests, education on self-care during pregnancy, identification of conditions detrimental to health during pregnancy, first-line management and referral if necessary (WHO, 2013).

WHO Standards of maternal and neonatal care (2006) suggests standard essential elements of care during pregnancy to be followed: They are close monitoring of both the pregnant woman and her unborn child and do necessary examinations such as anemia, malaria, HIV infection, mental health problems and sexually transmitted infection especially syphilis. These diseases may also be transmitted from mother to fetus during pregnancy or at birth leaving impact on maternal and neonatal health leading to high incidence of still birth and low birth weight. It also examines pregnancy related complications and helps in managing through treatments.

Antenatal care includes educating women regarding maternal and neonatal health needs and self-care during pregnancy and the postnatal period, including the need for social support during and after pregnancy. ANC guides women throughout the pregnancy and prepares them to recognize the warning signs during the pregnancy and seek immediate help from the skilled attendants. ANC also counsels women on healthy habits like, consuming nutritious meals, abandoning from smoking, and use

of drugs and alcohol which are risky for both mother and the unborn child. It also includes advices on postpartum, family planning/birth spacing and prepare women emotionally and physically.

According to WHO Standards of maternal and neonatal care (2006), every pregnant woman should make at least four visits for antenatal care during her pregnancy period under the supervision of a skilled attendant. First ANC is suggested to have in the first trimester (ideally before 12 weeks but no later than 16 weeks) and at 24-28 weeks, 32 weeks and 36 weeks (J. Villar et al., 2001; Jose Villar & Bergsjo, 2003). Similarly, Safe motherhood (2002) suggests pregnant woman should have at least four check-ups throughout the pregnancy and also be checked during the 12 hours following delivery and six weeks after the delivery.

Antenatal coverage in developing countries is 80 per cent as of 2010 from 63 per cent in 1990 and 71 per cent in 2000 for at least one visit indicating progressive improvement while the coverage was already 90 per cent in 2000 in South-Eastern Asia, Eastern Asia, and Latin America (*The Millennium Development Goals Report*, 2012). Globally, around 70 per cent of the women in the world receive antenatal care; however, according to WHO Standards of maternal and neonatal care (2006), more than 95 per cent of the women in the developed countries receive antenatal care.

Statistical yearbook for Asia and the Pacific (2011) estimated that in South and South-West Asian countries, antenatal coverage with at least one visit, Afghanistan has the lowest coverage with only 37 per cent followed by Nepal and Bangladesh with 44 and 51 per cent respectively while Sri Lanka and Maldives has 99 per cent followed by Iran with 98 per cent and 92 per cent in Turkey. Similarly, among South-East Asian countries, Thailand and Brunei has almost universal coverage with 99 per cent of pregnant women reporting the use of ANC. This is followed by 93 per cent in Indonesia and 91 per cent in Philippines and Viet Nam. Lao PDR has the lowest ANC coverage with only 35 per cent.

BHUTAN: The Study Context

Figure 2: Map of Bhutan

Bhutan's population comprises of 634,982 people with the sex ratio of 111 males per 100 females. Thimphu Dzongkhag has the highest population with 98,676 persons accounting to 15.5 per cent of the total population followed by Chhukha with 74,387 persons (11.7%).The least populated Dzongkhag is Gasa with 3,116 persons (0.5%) followed by Haa with 11,648 persons (1.8%) (NSB, 2005). Around 69 per cent of the Bhutanese population lives in the rural areas and the female literacy rate is 49 per cent while for men, it is 69 per cent (Population Perspective Plans 2010).Total fertility rate (TFR) recorded is 2.6 (BMIS, 2010) from 5.6 and 4.7 in 1994 and 2000 respectively (MoH, 2000). Crude death rate (CDR) recorded is 8.64 per 1000 population, maternal mortality ratio (MMR) so far is 2.55 per 1000 live births while infant mortality rate (IMR) is estimated to be 40.10 per 1000 live births ("Annual Health Bulletin," 2011) from 60.5 per 1000 (MoH, 2000). Out of 170,900 women of reproductive age (15-49), more than 70 per cent who gave birth arebelow the age of 35 years. It has been studied that teenage pregnancy is twice as common in rural areas than in urban areas (Bureau, 2007).

Bhutan started the Reproductive Health (RH) programme (earlier called as Maternal and Child Health Care (MCH)) to address the high maternal and infant mortality and high population growth rate. The Royal Government of Bhutan has always accorded a high priority to maternal and child health care programmes as early as 1970 owing to the high maternal mortality, infant mortality and child under five mortality.

Bhutan's national policies and programmes to reduce maternal mortality are through increasing institutional deliveries, increasing the proportion of birth attendants by skilled health workers and providing adequate antenatal, intra-partum and post-natal care which are being continuously provided (RGOB, 2005).

Some of the major challenges that Bhutan faces in improving maternal health and reducing maternal mortality are; cultural and awareness barriers that inhibit widespread contraceptive usage, early motherhood, increasing teenage pregnancies, unsafe illegal abortions, and the lack of information among Bhutanese women on reproductive health and safe motherhood (RGOB, 2002). These issues are mainly attributed to scattered population, rugged terrain, and limited human resources.

Health and education has been the first priority for Bhutan and has allocated the quarter of both capital and current budget from the development expenditure on it (RGOB, 2005). Adoption to improve maternal mortality as the 5th MDG, has progressively declined MMR from 560 to 255 per every 100,000 live birth between 1990 and 2000 (RGOB, 2002), however, MMR still persist to be high. The decline in maternal mortality rate was related to the advocacy and implementation of safe motherhood and pregnancy/delivery practices, ante and post natal clinical examinations, immunisation against tetanus, and the widespread distribution of iron and folic acid tablets to reduce anemia in pregnant women (RGOB, 2002). MDGs have set its target to reduce maternal mortality by three-quarters by 2015 so far on track.

Annual Health Bulletin (2007) revealed pregnancy complication as the first top ten indoor morbidity followed by other diseases like respiratory and pneumonia etc., Only 51 per cent of the total women visited health care centres for antenatal care for at least once during pregnancy. This is either because women do not realize they are pregnant during their earlier trimester or they wait for their pregnancy to develop and then decide to pay a visit for ANC (MoH, 2000). Similarly National Health Survey (2000) also observed that only 16 per cent of pregnant women visited health care centre for ANC during their first trimester of pregnancy, 46 per cent during second trimester and 72 per cent during the third trimester. Unlike the 2002 records, Annual Health Bulletin (2007) estimated 4989 pregnant women reported for their first ANC checkup out of which only 3467 of them satisfactorily visited for their third ANC checkup at the BHUs (Basic Health Units), indicating a significant decline in the third visit, while in most cases it normally increases because both the unborn child and mother will be at a higher risk as the mother will be nearing for labour.

1.2 Problem justification

Bhutan has successfully established health centres in all the twenty Dzongkhags and initiated numerous advocacy campaigns on maternal health and utilisation of antenatal care via reproductive health programmes. BMIS (2010) revealed that ANC coverage in Bhutan by a skilled attendant is 87.9 per cent. Despite the free access to health centres, the ANC utilisation has not met to the expectation in line with the

free accessibility. There has been no systematic study so far on the health care seeking behaviour amongst Bhutanese women on utilisation of antenatal care in Bhutan. Thus, this study is necessary to identify the factors affecting the utilisation of ANC in Bhutan and draw suggestions and recommendations where ever required.

1.3 Objective of the study

The objective of this study is to identify the factors affecting the utilisation of antenatal care in Bhutan.

1.4 Benefit of the study

The current situation of ANC utilisation in Bhutan will be identified and based on the research evidence, this study shall provide suggestions and recommendations for the policy makers and planners in formulating strategies in bringing up further improvements for those required.

1.5 Thesis structure

The layouts for this thesis are as following:

Chapter 1. Introduction

This chapter has five sections. It contains the background information about the thesis, and highlights the topic with brief write up on the problem statement and justification of the antenatal care scenario in Bhutan. The objective of study is also highlighted in this chapter and the benefits of this research are briefly provided.

Chapter 2. Literature Review

This chapter has seven sections. It presents the review strategy applied to write this chapter defining antenatal care by some of the researchers. The relevant factors as captured in the data set of this study are elaborated and linked with the objectives and the result of this thesis. Furthermore, a few relevant theories and models suiting to this study are also outlined and utilised in the development of the conceptual framework to fulfill the scope of this thesis.

Chapter 3. Research Method

This chapter has five sections and each section presents the data sources and methodologies used based on the research objective and highlights the limitations of this study. The entire data set is obtained from the Bhutan Living Standard Survey conducted in 2012 by National Statistics Bureau of Bhutan which covers whole Bhutan.

Chapter 4. Research Findings

This chapter provides the findings and analyses of the entire study drawing association with the literature review in chapter two and the statistical significance of the data, and to great extent, fulfilling the objective of this study. Moreover, this chapter brings out the main research findings of the study undertaken.

Chapter 5. Discussion and recommendations

This chapter presents the summary and discussion of the findings and analyses done in the preceding chapters. It provides some brief policy recommendations and its importance in reduction of maternal mortality and improvement of maternal health as a whole from academic perspectives.

CHAPTER 2

LITERATURE REVIEW

The following section reviews the literature on antenatal care and the factors influencing the utilisation of antenatal care services outlining the context in which the thesis's conceptual framework are situated and guided. It begins with a brief discussion on the methods used for the literature review. Next, it explores the context of prenatal health, to emphasise why the pregnancy period is of significance to a woman's health. This is followed by a discussion of antenatal care service provision, in terms of care number and timing of antenatal care services, and antenatal care and care service use in the study context (Bhutan). Determinants of antenatal care utilisation identified in the literature are investigated and presented. In the final subsection, the thesis's research question derived from this overview are presented.

2.1 The review strategy

The literature reviewed in this current study is obtained from various sources, including published and unpublished theses, academic papers, technical guidances and protocol documents. The most frequently consulted sources were academic papers, obtained through the standard electronic journal databases, such as JSTOR, NCBI, PUBMED and POPLine, and a search engines such as Google book and Google scholar.

In Bhutan, the term antenatal care/ANC is widely used but we don't have a specific term for it in our national language. Therefore, terms related to antenatal/prenatal care were searched individually and combined with other terms related to service use such as , antenatal care, prenatal care, utilisation, determinants, factors, significance, health care, maternal mortality, infant mortality.

2.2 What matters to pregnant women?

Pregnant women are very fragile during the entire period of pregnancy because both the woman and the unborn child are at risk from the time of conception till the time of delivery. Risks are either developed during the pregnancy or they existed before pregnancy (family history of disease).

Hypertension and diabetes are the most common morbidities women develop during pregnancy. Physical inactivity is one risk factor for obesity while type 2 diabetes[1] and severe hypertension during pregnancy can result in preeclampsia, fetal growth restriction, premature birth, placental abruption, and stillbirth (*Hpyertension in Pregnancy- The management of hypertensive disorders*, 2010). Similarly,

[1] Type 2 diabetes is a lifelong (chronic) disease in which there are high levels of sugar (glucose) in the blood. When a person has type 2 diabetes, fat, liver, and muscle cells do not respond correctly to insulin. This is called insulin resistance. As a result, blood sugar does not get into these cells to be stored for energy. http://www.nlm.nih.gov/medlineplus/ency/article/000313.htm; accessed on 9 Feb 2013

psychological health problems are also developed such as: maternal stress and worry, sleeping difficulties, change in routine, perceived lack of control, and changing role functions that contribute to stress vulnerability ("Impact of Physical Activity during Pregnancy and Postpartum on Chronic Disease Risk," 2006). Evans (1994) stated, “The Stressful experiences arise from coping with conditions of low income, poor quality housing, food insecurity, inadequate working conditions, insecure employment, and various forms of discrimination based on aboriginal status, disability, gender, or race.”

Likewise, women whose pregnancies are unplanned are more likely to experience depression ("Fast Facts: The Consequences of Unplanned Pregnancy," 2008). Nutrition consumption habit during pregnancy also adds up to pregnancy morbidities. Eating unhealthy food may develop risks like obesity which may further result to heart diseases, diabetes, high blood pressure, stroke, breathing problems and arthritis (A Lifetime of Good Health: Your Guide to Staying Healthy).

In contrast, a study on Sexual health during pregnancy and the postpartum suggests, sexual activity or sexual interactions throughout pregnancy period can promote sexual health and well-being and a greater depth of intimacy (Johnson, 2011). Similarly, the safe motherhood (2002) has specified seven key messages on the importance of safe motherhood as follows: i) All families should be in a position to recognise warning signs and seek immediate help. ii) At least four ANC visits are

advised. iii) All pregnant women need particularly nutritious meals and more rest throughout the pregnancy. iv) Pregnant women should refrain from smoking, alcohol, drugs, poisons and other pollutants as they are harmful for both the woman and the foetus. v) Physical abuse during pregnancy is dangerous for both the woman and the foetus. vi) Girls who are healthy, well fed during their childhood and educated will have fewer problems during pregnancy and child-delivery. vii) Every woman has the right to health care, especially during pregnancy and childbirth.

2.3. Antenatal care and services

2.3.1 Defining Antenatal Care

National Institute for Clinical Excellence (2003) defined antenatal care as, "Antenatal care is the care that you receive from health professionals during your pregnancy. It includes information on services that are available and support to help you make choices. You should be able to access antenatal care services that are readily and easily available and sensitive to your needs."

The WHO's definition of antenatal care is, "Antenatal care includes recording medical history, assessment of individual needs, advice and guidance on pregnancy and delivery, screening tests, education on self-care during pregnancy, identification of conditions detrimental to health during pregnancy, first-line management and referral if necessary."(WHO, 2013).

Similarly, WHO (2006) proclaims the aims for antenatal care is, “To prevent, alleviate or treat/manage health problems/diseases (including those directly related to pregnancy) that are known to have unfavourable outcome on pregnancy, and to provide women and their families/partners with appropriate information and advice for a healthy pregnancy, childbirth and postnatal recovery, including care of the newborn, promotion of early exclusive breastfeeding and assistance with deciding on future pregnancies in order to improve pregnancy outcomes.”

2.3.2 Timing and Number of Antenatal Care Service Deliveries

WHO (2006) suggested that every pregnant woman should make at least four visits for antennal care during her pregnancy period under the supervision of a skilled attendant. First ANC is suggested to have in the first trimester (ideally before 12 weeks but no later than 16 weeks) and at 24-28 weeks, 32 weeks and 36 weeks (J. Villar et al., 2001; Jose Villar & Bergsjo, 2003). Similarly, Safe motherhood (2006) suggests pregnant woman should have at least four check-ups throughout the pregnancy and also be checked during the 12 hours following delivery and six weeks after delivery.

According to NICE (2003) guidelines, exact number of antenatal appointments depends on individual’s situation. If a woman is expecting her first child, she is likely to have up to ten appointments. If she has had children before, she should have around seven appointments and some of them may take place at home if it suits the

woman. Similarly, the Antenatal Care- Routine Care for Healthy Pregnant Women (2008) suggested, number of antenatal care depends on the parity of the woman and schedule with ten visits for nulliparous women and seven for parous women. It is also suggested that the first ANC visit should be occurred in the first 12 weeks of pregnancy and rest of the schedule area as follows: 16th week, 18th -20th week, 25th week, 28th week, 31st week, 34th weeks 36th week, 38th weeks, 40th week, and 41st week respectively.

In the countries like Western Europe, North America and many other countries, pregnant women visits heath care services 12–16 times as well as health care providers visit their home (Banta, 2003).

2.3.3 Antenatal care in Bhutan

Bhutan caters health services to the citizens from the decentralized system of healthcare composed of the three-tiered hierarchy ascending from Out-Reach Clinics (ORC) to the Basic Health Units (BHU) in the primary level and District Hospitals at the secondary level and the Regional Referral hospitals to the National Referral Hospital at the tertiary level. Services are delivered through 31 hospitals, 184 Basic Health Units (BHU), and 517 out-reach clinics ("Annual Health Bulletin," 2011). Bhutan has achieved 90 per cent primary health care services within 3 hours walking distance each way to health care.

Bhutan started the Maternal and Child Health (MCH) services in 1970 as an integral part of primary health care package to address the problems of high maternal, infant, under five mortalities and high population growth. The MCH services included antenatal care, care during delivery, postnatal care, immunisation of children and pregnant mother with tetanus toxoid, family planning etc. ("Terms for Referencene for Review of Reproductive Health Programme," 2010).

Besides referral hospital and district hospitals, antenatal care service deliveries are catered through Basic Health Units (BHU) and in out-reach clinics which are conducted in a monthly basis organised by BHUs.

All antenatal care services comprise of history-taking, recording of blood pressure and weight, examining of palpation, osculation, tetanus toxoid immunisation, urine test for sugar, blood test for hemoglobin and *Venereal Disease Research Laboratory* (VDRL), and distribution of B-complex and iron tablets (MoH, 2013).

Antenatal coverage in Bhutan has shown a gradual improvement with the estimation of 88 per cent (BMIS, 2010) from 70 per cent in 2005 (MDGs) and 51 per cent in 2000 respectively (MoH, 2000). BMIS (2010) has estimated around 64 per cent of women living in the poorest households reported for four or more antenatal care visits compared to 92 per cent among those living in the richest households.

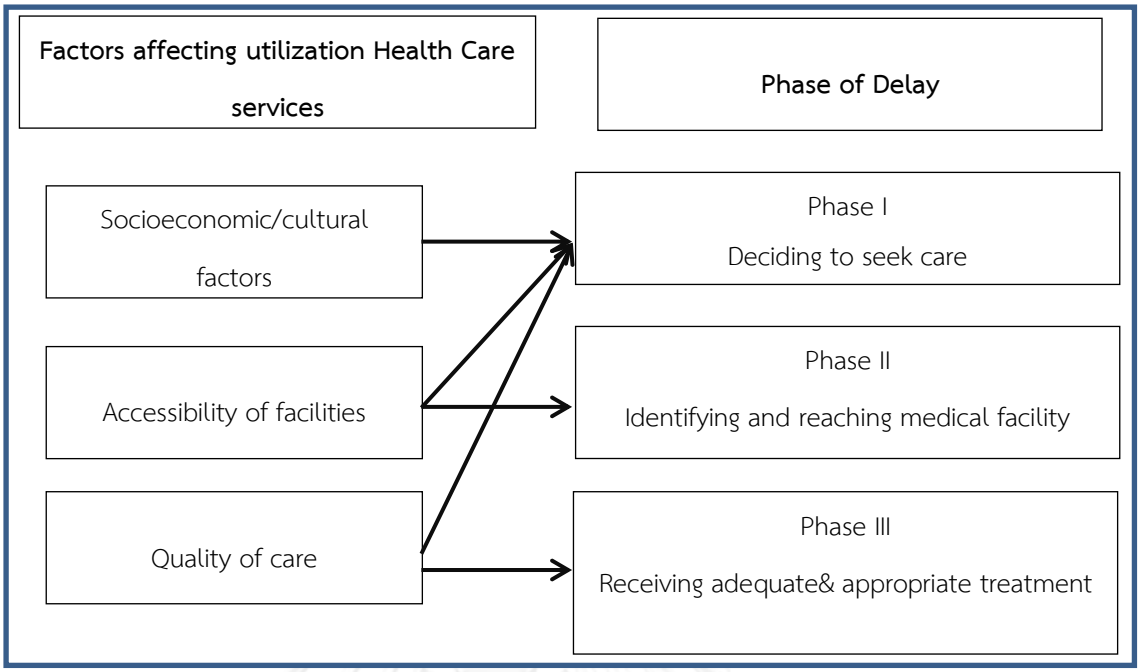
2.4 Some selected models and theories related to the study

This section will briefly discuss on the theories and models on the health care seeking behaviour that are closely related to the behaviour for seeking antenatal care on the ground of maternal health.

2.4.1. The three delay model

McCarthy and Maine (1992) developed a three delay model by analysing the economic, social, cultural, behavioural, and biological factors that influence maternal mortality. The three delay model are as follows: 1) *Delay in deciding to seek care*- Women fail to seek antenatal care due to lack of knowledge about the pregnancy danger signs, poor quality of health care services, low economic status and accessibility. 2) *Delay in identifying and reaching a medical facility*- Likelihood in seeking care are lesser when the health centre is very far from their place of residence and also due to unavailability of transportation services. 3) *Delay in receiving appropriate care at health facilities*- Due to lack of adequate human resources or medical assistance, medicines and equipments at the health facilities delays women from receiving appropriate treatment.

Figure 3: The Three Delay Model



Source: http://www.cpc.unc.edu/measure/prh/rh_indicators/specific/sm

2.4.2. The choice-making model

Young (1982) crafted this model based on his ethnographic study of health care utilisation in Mexico. It comprises of four components that individuals perceives to seek health care (antenatal care) as below:

- Perceptions of severity (Women's perception of severity of illness considering the social and cultural classification on the level of severity of illness).
- The knowledge of home treatment (try treating illness by using home remedies before opting for health care services)
- Faith in remedy (believe in efficacy of the treatment).

- The accessibility of treatment (cost and availability of health care services).

2.4.3. Health Belief Model

The Health Belief Model was developed in the 1950s to explain the lack of participation in medical screening programs for health prevention or detection programme offered by the U.S Public Health Service. This model describes the individual's perception/belief and behaviour to seek health care based on the following characteristics (Rosenstock, Strecher, & Becker, 1994).

Perceived Threat

It is the function of two perceptual components such as perceived susceptibility and severity. This indicates the level of motivation an individual acts to avoid bad consequences.

Perceived Susceptibility refers to individual's perception of how much risk she is exposed to getting health problems and there is likelihood to increase in seeking health care services as the level of susceptibility increases.

Perceived Severity refers to individual's perception of seriousness of illness and its consequences

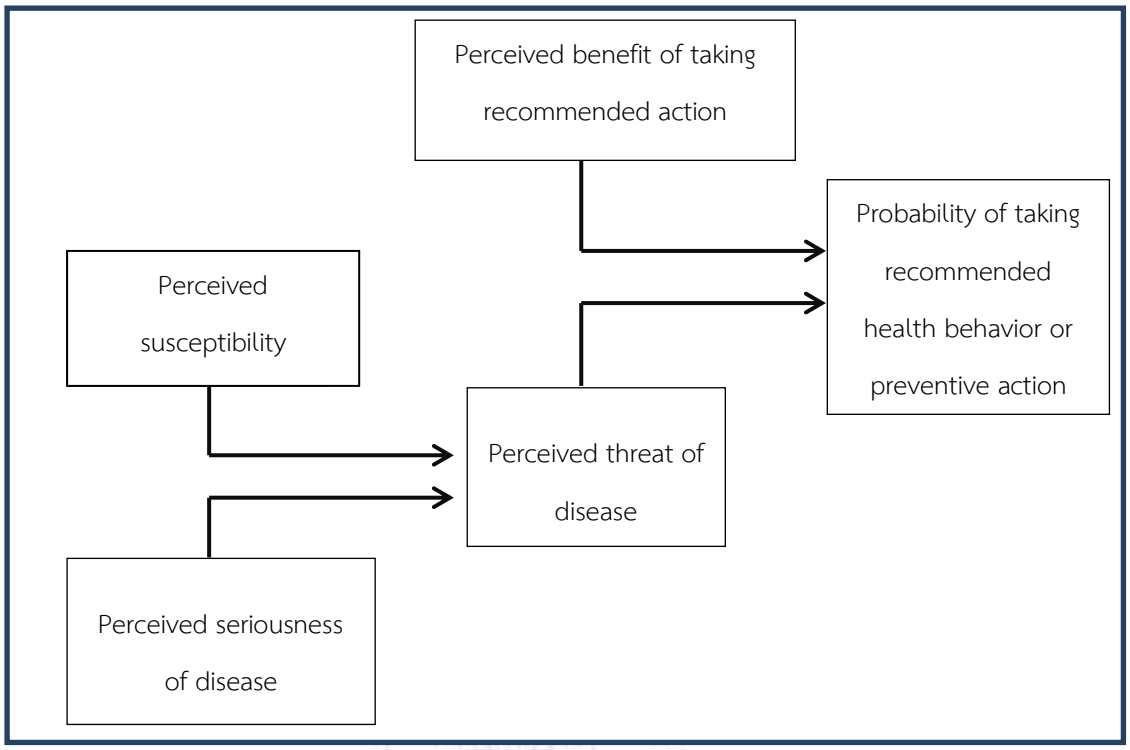
Perceived Benefit refers to the individual's perception to seek health care services if only the treatment for illness has a greater benefit than cost applied.

Perceived barrier refers to negative habits of individual like fearing to seek medical care because of embarrassment, pain, side effects, time consuming, and cost effectiveness despite of knowing that the disease or the illness will lead to severe consequences.

Self-Efficacy refers to one's belief on self-capability to perform the desired behaviour.

Although the HBM is one of the most popular and commonly used theories in every study for health-related behaviour, several criticisms on this model have been pointed out by scholars. Cleary (1986) emphasises that the HBM focuses only on the perceptual factors such as belief and fails to study individual's behaviour due to personal habits and social-cultural norms. Similarly, Rosenstock (1990) pointed out that the model stress very little on quantification of the associations among the variables (for example, HBM did not attempt to represent the precise numerical relations among perceived susceptibility, severity, benefits, barriers, and self-efficacy). Furthermore, he observed that HBM has attempted to determine the relative power to these variables in the prediction of actual health behaviour and lacks the uniformity of belief-behaviour relation (cited from (Noh, Gagne, & Kasper, 1994).

Figure 4: The Health Belief Model



Note: The figure is adapted from the Models of Health Behaviors and compliance: application to Audiological Rehabilitation Research (Noh et al., 1994)

2.4.4. Suchman's (1966) stages of illness and medical care

This theory indicates five stages of the individual's decision making process in determining to utilise the health care service: 1) The individual's symptom experience (pain, emotions, and recognition of experience as symptomatic of illness); 2) The individual's assumption of a sick role (individual assumes that she is sick and explores for treatment); 3) Medical care contact (seeks professional health care system); 4) The assumption of a dependent-patient role by accepting the

professional health care treatment; 5) The individual's recovery from illness (accepting the professional health care treatment, she recovers from the illness).

2.4.5. Mechanic's general theory of help seeking

Mechanic (1995) defined illness behaviour as the "varying individual respond to bodily indication, how they monitor internal states, defines and interpret symptoms, make attribution and take remedial actions and utilise various sources of formal and informal care." Later based on Parsons's works Mechanic (1962) proposed the concept of illness behaviour as symptoms being perceived, evaluated and acted (or not acted) in a different manner by different people (cited in Larson 2009). Mechanic (1978) identified four factors that influence on health care utilisation. (cited from (Coreil, 2010)).

1) The salience and evaluation of symptoms.
2) Degree of disruption in one's casual activities.
3) Competing needs of those affected including, family and significant others.
4) Available coping resources, including treatment options.

2.5 Factors Influencing Antenatal Care Service

Following the literature review, factors determining the utilisation of health care identified are as follows: socio-economic characteristics, accessibility, quality of care, knowledge, belief etc. Similarly, seeking antenatal care by pregnant women depends on aforementioned characteristics. Some of the common factors influencing

antenatal care utilisation are: maternal age, economic status, education level, marital status, place of residence (rural & urban) and the distance etc.

2.5.1. Maternal age

Generally utilisation of antenatal care is assumed to be lowest in the youngest and oldest age groups, because many of the younger pregnant women will be unmarried and unable or unwilling to use maternal health services, and many of the older pregnant women will have ingrained cultural biases against formal health care. However, study from the developing countries observed that differentials across age groups are not very marked with all age groups showing similar rates for four or more antenatal visits. The study observed older women report slightly lower levels of antenatal care than women under 35 ("Antenatal Care in Developing Countries: Promises, achievements and missed opportunities (1990-2001)," 2003). In contrast Bhatia and Cleland (1995) found that younger women were significantly less likely to seek routine antenatal care than older women during pregnancy. A study from Ibadan, Nigeria observed that women age above 25 were more likely to seek antenatal care for more than two times than those below 25 years (M.D & K.E., 2010).

2.5.2. Economic status of a woman

Economic status is found as one of the important factors on ANC utilisation. A study from the developing countries conducted by World Bank on the utilisation of ANC

services based on the context of poor wealth quintile observed, ANC is heavily influenced by wealth. Women living in households that fall within the poorest population quintile used antenatal services much less frequently than those in the richest quintile ("Antenatal Care in Developing Countries: Promises, achievements and missed opportunities (1990-2001)," 2003).

A study in USA observed income as a dominant influence in ANC utilisation. Antenatal care participation are lower among the low income women. Women with higher income are more likely to seek antenatal care than women with lower income (Lia-Hoagberg et al., 1990). The authors found that women with incomes below the federal poverty level consistently showed higher rates of late or no antenatal care and lower rates of early care than women with larger income. Research conducted elsewhere, such as Kenya proved that the socio-economic status of the household, measured by household possessions and amenities (such as radio, car, TV, type of toilet facility, source of water, etc.) play an important role in the frequency of antenatal care visits (Magadi, Madise Nj Fau - Rodrigues, & Rodrigues, 2000).

2.5.3. Marital status

A study from Institute of Medicine in 1988 suggests marital status is highly associated with the utility of antenatal care. Among women with live-born infants, unmarried women were more than three times likely to obtain late or no antenatal care than married women (Wilcox & Marks, 1994). Similarly evidence from Haiti stated that in

rural areas married women or cohabiting women are more likely to seek ANC than single women in contrary, marital status has no effect on ANC utilisation for those women in urban areas (Alexandre, Saint-Jean, Crandal, & Fevrin, 2005).

2.5.4. Parity

Generally, it is known that parity (number of births) has effect on the utilisation of ANC visit. Women expecting their first child were most likely to seek antenatal care than women who had already more than one child. For example, in Malawi, the percentage for ANC visit declined from 66 per cent to 59 per cent for mothers with six or higher order births ("Antenatal Care in Developing Countries: Promises, achievements and missed opportunities (1990-2001)," 2003). A study in UK observed parous women and women with more than two children preferred fewer appointments for ANC, whereas nulliparous or women who have had no adverse pregnancy history showed a higher preference for ANC appointments (*National Collaborating Centre for Women's and Children's Health (UK). Antenatal Care: Routine Care for the Healthy Pregnant Woman.* , 2003). In support, in Nigeria, ANC utilisation among women with parity of more than 4 children was only 19 per cent, while women with a parity of 1-4 children, 71.7 per cent utilisation was observed (Awusi, Anyanwu, & Okeleke, 2009).

2.5.5. Literacy

Women with the ability to read and write are understood to have high association with ANC utilisation. A study conducted in Ethiopia revealed that women who could at least read and had attended primary or higher education were more likely to use ANC services than those who could neither read nor write (illiterate) (Tewodros, G/Mariam, & Dibaba, 2009).

2.5.6. Age at first pregnancy

Research shows that age at first pregnancy is associated with the utility of ANC. A study from Southern Ethiopia observed women whose age were less than or equal to twenty years at the time of first pregnancy were nearly three times more likely to seek antenatal care services than whose age at first pregnancy was more than twenty years (Tewodros et al., 2009). In India, women with two or three birth orders and less than or equal to 24 months of birth interval were less likely to utilise full antenatal care than women who had experienced child birth for the first time (Prashant Kumar Singh, Rai, Alagarajan, & Singh, 2012). Similarly, Celik and Hotchkiss (2000) found out that young women are more likely to use antenatal care at their first pregnancy than second and third.

2.5.7. Education level

Level of education is studied to have higher association with the health care seeking behaviour for antenatal care and the evidence from Nigeria suggests that women having secondary education and above were more likely to attend antenatal care

compared to women who had education of primary school and below. A study from Nepal also observed that those women with secondary or higher education level were four times or more likely to seek antenatal care visit than women with no education (Shrestha & Shrestha, 2011). Similarly, husband's education also proved in the variation in antenatal care seeking behaviour among their wives (M.D & K.E., 2010).

2.5.8. Working status

Working status of women affects the antenatal care utilisation. ANC utilisation is normally higher among the working women than non-working women. Study conducted in Nigeria observed 100 per cent ANC utilisation among the civil servant women. In contrast only 36 per cent of house wives used ANC. While traders and farmers observed 75 and 48 per cent per cent of ANC utilisation respectively (Awusi et al., 2009).

2.5.9. Ethnicity

Antenatal care utilisation differs among different ethnic group. Evidence from Vietnam suggests that ethnic is strongly and negatively associated with the utilisation of antenatal care (Trinh, 2012). Study conducted on premature births by Vintzileos et al (2002) in United States observed that African American women were 2-3 times more likely to have no antenatal care compared to white women. Likewise, non-white ethnicity and migrant status women in United Kingdom were shown to play a

large role in late presentation to antenatal care (Tariq, Elford J Fau - Cortina-Borja, Cortina-Borja M Fau - Tookey, & Tookey, 2012).

2.5.10. Access to media

Women who have access to media such as television, radio and newspapers are learned to have positive effect on ANC utilisation. A study on Maternal health care utilisation in India conducted by Singh, Rai, alagarajan, & Singh (2012) found listening to radio and watching TV had significant effects on maternal health service utilisation even after controlling for the education of the women and her spouse. Similarly, from a study in the Philippines, Beker, Peters, Gray, Gultiano, & Black, (1993) also indicated that possession of radio or TV was associated with adequate utilisation of antenatal care and suggested that listening to the radio and watching TV might be the proxy measure of access to information on health.

2.5.11. Types of employment

Antenatal care utilisation is also associated with the types of occupation of women. Tran et. al (2012) studied the use of ANC with the types of occupation in Vietnam. He observed those self-employed (farming for rural and business in the case of urban area) women had significant association to low overall adequate utilisation of ANC in the rural area however; this did not apply for women in urban areas.

2.5.12. Place of residence

Women residing in urban areas are more likely to seek antenatal care than women from rural area because the services are ealisy accessible and faster in urban than rural. The models and theories above have supported accessibility to the health centre as strongly associated to the behaviour of women on seeking health care (antenatal care). Study from Vietnam revealed women living in the rural area were significantly associated with lower adequate use of ANC services compared to women living in the urban area, both regarding quantity (number and timing of visits) and content (Tran, Gottvall, HNguyen, Ascher, & Petzold, 2012). Similarly, study conducted by Shrestha and Shrestha (2011) in Nepal found percentage of utilisation of antenatal care by urban women was double than rural women.

2.5.13. Distance

Distance and longer travelling time are the barriers on health seeking behaviour. According to Joanne and Geeta's (1989) observation, distance played the most influential factor on health care utilisation in Ahafoano district in south of Ghana. Authors observed social and physical accessibility to health care centre as the two most important components that mattered pregnant women from using antenatal care services in the district. Further, they emphasised women react on the availability and convenience of appropriate transportation to travel to nearest health centre. Similarly, a study from Kham district in Lao PDR observed distance and travelling conditions were the two common elements that hindered pregnant women from

using antenatal care services. These two factors were reported by most of the women in Lao that made them inconvenient from visiting health centres in addition to the cost of travelling (Ye, Yoshida, Harun-Or-Rashid, & Sakamoto, 2010).

2.5.14. Region

ANC utilisation differs with regions. WHO (2003) reported 98 per cent antenatal care service utilisation for at least one visit was in industrialised countries while developing countries was only 68 per cent. Region with the lowest ANC utilisation in the world was reported to be South Asia with only 54 per cent while Middle East and North Africa was little higher at 65 per cent. Similarly, Nepal also reported ANC utilisation differed between the regions. It was observed that pregnant women from Central and Eastern regions were more likely to seek ANC by 1-3 times than no visit from Western region (Shrestha & Shrestha, 2011).

2.5.15. Role of husband

Facts for life (1993) suggested, in order to reduce maternal mortality and to prevent many serious illnesses, husband, community and the government can play vital role by providing support to women. Study on maternity care among adolescents in rural India revealed women whose husband had education of higher secondary or above were more likely to utilise antenatal care compared to women whose husbands had no education at all (Prashant Kumar Singh, Rai, Alagarajan, & Singh 2012). Similarly, husband's education and working status showed a significant effect on woman's ANC

utilisation. Those women whose husband were working and had the education level higher than secondary level were more likely to seek antenatal care (M.D & K.E., 2010). Besides husband education, working status and husband's approval is also known to have strong association with the ANC service utilisation. Tewodros, B., G/Mariam, A., & Dibaba, Y. (2009). observed women in Southern Ethiopia behaved according to their husband's wish. Women whose husband approved for antenatal care were more likely to use antenatal care than women whose husband did not.

2.5.16. Mode of transportation

Mode of transportation to health centre is also seen as one of the obstacles in using health care services. No road or poor condition of road or limited number of vehicle especially in remote areas leaves women to travel to health centre by foot which normally they give away to travel to use antenatal care during pregnancy. A study conducted by Hirschowitz et. al (1995) in South Africa observed that 51 per cent of women used public transport, 37 per cent walked to health centres and 7 per cent used private vehicles (McCray, 2004).

2.5.17. Summary

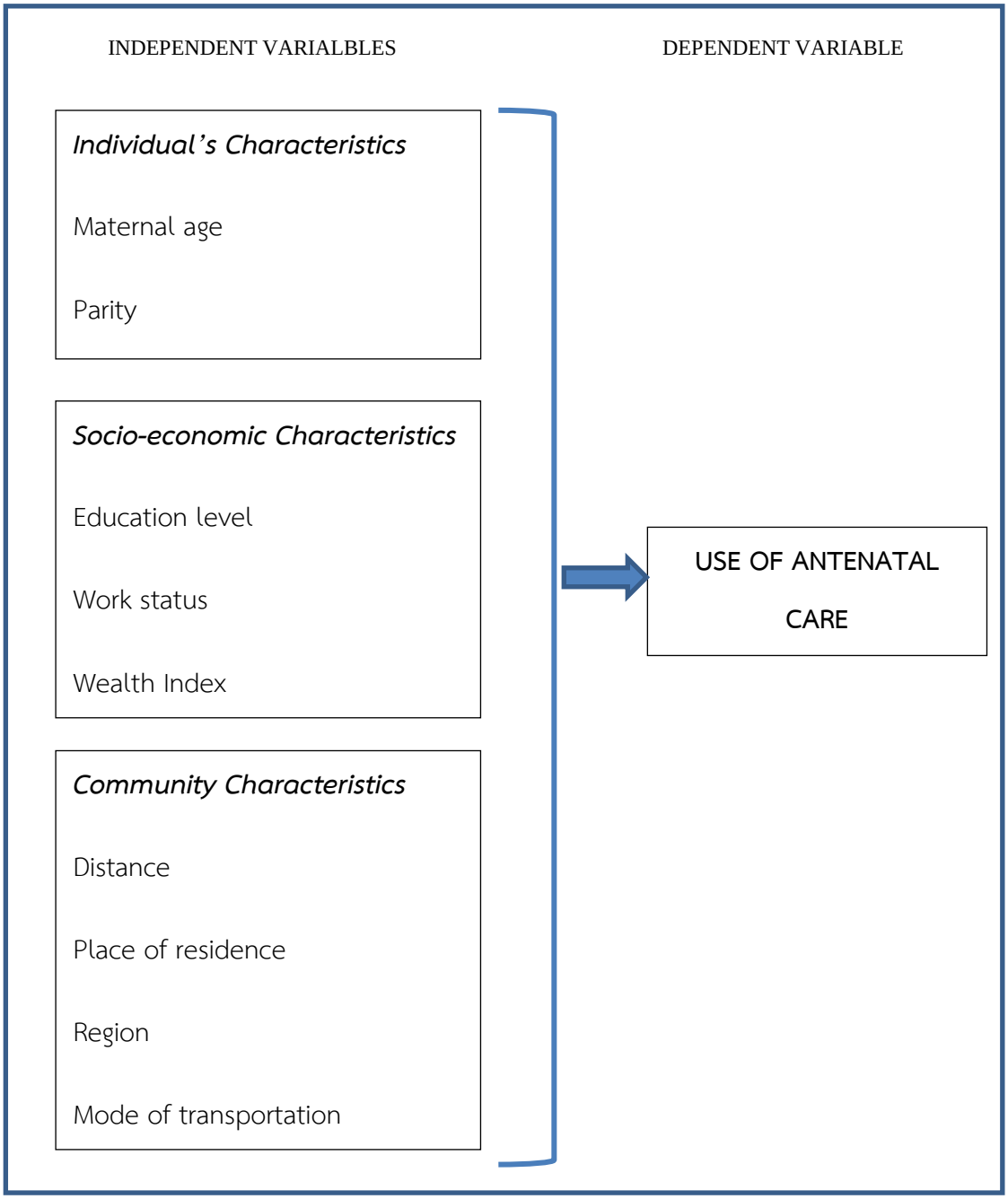
Almost all cases of maternal mortality are preventable. It is estimated that 74 per cent of maternal deaths could be prevented if all women had access to the interventions for preventing or treating pregnancy and birth complications, in particular emergency obstetric care (Wagstaff & Claeson, 2004). These mortalities are

preventable if mothers seek proper antenatal care from the professional health care provider and fulfill the prescribed care as advised by their health care givers. However, under utilisation of antenatal care still persist in many regions of the world despite of knowing that ANC utilisation helps in reducing the risk or death during pregnancy, delivery and after the delivery. Literature review indicated that the utilisation of ANC service is associated to the individual characteristics of a women comprised with other factors such as, age, level of education, experience of giving birth, economic status and other social factors.

2.6 Conceptual framework

Evidences from the literature review revealed that the utilisation of antenatal care by the pregnant women depends on the maternal characteristics, socio-economic characteristics and others, such as accessibility by distance and media. While doing the literature review, other variables which are also associated to the utilisation of antenatal care were identified. The variables are role of husband and ethnicity. However, due to unavailability of proxy variables in the dataset, it could not be included in the conceptual framework. Therefore, based on the identified variables from literature review and the availability of proxy variable in the dataset, the conceptual framework is constructed as illustrated in Figure 5.

Figure 5: Conceptual framework showing the relationship between the independent and dependent variable



2.7 Hypothesis

H_o= Bhutanese women use antenatal care service

H_1= Bhutanese women do not use antenatal care service

CHAPTER 3

RESEARCH METHOD

This section presents the methodology used to carry out this study. It highlights on the source of data, coverage and the sampling techniques used to analyse the data. It describes the dependent and independent variables and their associations.

3.1 Data source and access

This study utilised the secondary data from Bhutan Living Standard Survey (BLSS) 2012 conducted on the basis of every four to five years since 2003 by the National Statistics Bureau (NSB), Bhutan, funded by the Asian Development Bank. The latest BLSS was conducted in month of March and April, 2012.[2]

The BLSS 2012 was a large cross-sectional and a nationally representative survey. The primary objective of Bhutan Living Standard Survey (BLSS) was to study the living standards (poverty statistics) of the country and trends in various socio-economic issues. Apart from basic information on demographic and social characteristics (e.g. age, sex, marital status and education), the survey has also collected data on health

[2] The other data sets available are: 1) National Health Survey 2012); 2) Bhutan Multiple Indicator Survey 2010. NHS 2012 has completed, however, to access the data set, Ethical Approval from Research Ethics Board of Health (REBH) must be obtained which takes a longer process as the board meets only four times in a year (February, May, August and November). BMIS 2010 although has all the variables that are required for this study but the data is already two years old. The selected data set is more reliable as it will provide the latest figure.

status, access and distance to health outlets such as hospital/BHU/ORC and drugstore/pharmacy. Unlike the previous surveys (2003 and 2007), the BLSS 2012 has collected new information on fertility which provides a scope for this study. The main source of information is based on the fertility section (Block 1.4). The questionnaire consisits of data collected from women aged between 15-49, on the number of children ever born, age at first birth, birth in the last 12 months prior to survey and the use of antenatal care (please see the questionnaire in Appendix 4).

In order to obtain the dataset for this study, a request letter was sent to the director of National Statistics Bureau requesting them to share their data from the recent survey on Bhutan Living Standard, 2012 and permit to analyse it for this study.

3.2 Sample design and coverage

The BLSS had collected information from 39, 825 persons from the total sample of 8,968 households representing the national population. The sample households were selected on the basis of two mutually exclusive sampling frames for rural and urban areas. Chiwogs (group of villages) in rural areas and Gewogs (blocks) in urban areas were defined as primary sampling units (PSUs). PSU were selected from each of the sampling strata by using systematic PPS (Probability Proportional to Size) sampling procedures to ensure each stratum represented the population equally. However, instead of proportionally allocating the sample size across urban and rural areas, BLSS 2012 set the sample sizes of these areas to almost equal to capture

clearly the higher variability of socio-economic data in the urban areas. Detailed distributions of sample households' areas are shown in table 1 below.

Table 1: The allocation of household samples by area

Types of Area	No. of PSU	Total No. of Households	Sample size
Urban	322	43,461	5,012
Rural	1,506	85,683	4,986
Total	**1,828**	**129,144**	**9,998**

Source: BLSS, 2012

Within each selected household, the head of the household was interviewed otherwise any other elder member who could provide the information of the household members. The method of data collection was a self-administered questionnaire.

In total, 9,998 households (4,986 rural and 5,012 urban) were selected for the survey out of which 8,969 households (4,350 rural and 4,619 urban) were successfully interviewed. The total number of women and men interviewed during this survey were 20,383 and 19,829 respectively.

3.3 Study samples

In order to investigate antenatal service use among Bhutanese women, the study focused on retrospective reports from women who had birth experience. Any female respondents who reported to have given birth in the past 12 months before the BLSS survey were included in the analyses. Women who were pregnant at the time of the survey were excluded.

From the total female respondents of 20,383, filtering out only those women who had given birth in the last 12 months prior to the survey and age between 15-49, the analysed sample is 710 women.

3.4 Operationalization and variables

This study is based on the factors affecting the utilisation of antenatal care [dependent variable] among the Bhutanese reproductive age women. The independent variables include demographic, socio-economic and community characteristics of a woman as such as distance, mode of transportation from the home to the health care centre.

3.4.1 Dependent variable

The study focuses on a binary variable outcome indicating the use of antenatal care service, indexed by the BLSS survey item, Fertility, asking the respondents the question: "*During her pregnancy, did [Name] receive pre-natal care from a doctor or qualified nurse?"* The variable was coded 1 if the respondent reported the receipt of

antenatal care from a doctor or qualified nurse during the pregnancy and 0 otherwise.

3.4.2 Explanatory variables

Building on the literature review of factors associated with the use of maternal healthcare services, explanatory variables were identified. To account for the influence of women's individual characteristics, the theoretically potential variables included maternal age, level of education, marital status, number of children ever born, area of residence (urban or rural), working status and types of occupation.

In addition to the women's personal characteristics, variables that were expected by, or reported in the literature to be important in predicting maternal and antenatal service use were incorporated into the initial variable list. These variables are wealth index, mode of transportation, distance and region (Eastern, Central and Western).

Individual's characteristics

Maternal age: Age of a woman at the time of survey. Age is measured in years.

Parity: Parity refers to the number of living children woman gave birth.

Socio-economic characteristics

Education level: Highest level of education a woman has attained.

Working status: Working status refers whether the woman is working or not.

Wealth Index: It is a measure of cumulative possession of household assets. It is constructed into three quintiles, such as rich, middle and poor accordingly.

Community characteristics

Distance: Time taken travelling to the nearest health care centre. Distance is measured in hours.

Place of residence: It refers to the place where the woman resided at the time of survey and it is categorised as urban and rural.

Region: It refers to the region where the woman lived at the time of survey and the region is categorised into three regions, namely, Eastern, Central and Western.

Mode of transportation: This refers to mode of transportation used by woman from her house to health centre during her course of pregnancy.

Table 2: Summary of variables' description, measurement scale and source of information

Variable	Description	Measurement scale	Source of information
Antenatal care	Seeking antenatal care during the indexed pregnancy	Yes = 1 No = 0	Block 1.4 F7

Contd..

Variable	Description	Measurement scale	Source of information
Maternal age	Age of a woman	15-24 =1 25-34 =2 35+ = 3	Block 1.1 D3
Parity	Number of children	0 =1 1= 2 2+ = 3	Block 1.2 F4
Level of education	Education level of a woman	No education = 1 Primary Education = 2 Middle sec & above = 3	Block 1.2 ED2, ED3, ED11
Working status	Whether the women is currently working	Working = 1 Not working = 0	Block 1.5 E1, E2, E3

Contd..

Variable	Description	Measurement scale	Source of information
Wealth Index	Possession of household assests	Poor = 1 Middle = 2 Rich = 3	Block 3 AS1
Mode of transportation	Mode of transportation from home to health centre	By foot = 1 Others = 0	Block 4 SR 1
Distance	Distance from home to health care centre	LT 30 min = 1 30min - 1hr = 2 3 hrs + = 3	Block 4 SR2

Source: BLSS, 2012

3.5 Methods of analyses

The Statistical Package for the Social Sciences (SPSS) version 20.0 for Windows was used. The analyses included descriptive statistics (i.e. frequency, percentage, cross-tabulation and chi-square) to examine the levels, trends and determinants of antenatal care utilisation, and binary logistic regression to determine which factors increase the likelihood of women to seek antenatal services.

3.6 Limitation of the study

This current study is subjected to three limitations. The first limitation concerns the reported use of antenatal care. Since the survey did not ask for antenatal booklet to see the visit records, there might be a chance that the women over-reported the visit to antenatal clinic due to social desirability bias as they wanted to be viewed favourably by the researcher or feeling obliged to report that they visited the clinic.

The second limitation is due to the adoption of the cross-sectional survey. The BLSS 2012 followed a cross-sectional design. Its major limitation is that it can only see that two variables are associated, and unable to demonstrate any causal relationships between variables. As such, there is still a possibility that the outcome variable influences some of the explanatory variables, which subsequently leads to incorrect inference of the association investigated.

The third limitation of the study is that no information was available in the survey on husband, who appears in the literature to play a vital role in women's utilisation of

the antenatal care services. The other important variables, such as the utilisation of family planning, women's satisfaction on service usage and women's attitudes and perceptions towards antenatal care services cannot be also determined from the data. They were therefore excluded from the study's analyses. Marital status was also excluded due to unequal frequency distribution in the data set.

CHAPTER 4

RESEARCH FINDINGS

This chapter presents the analyses of BLSS data, in which primary aims are to understand the current utilisation of antenatal care in Bhutan (2012) and to examine the determinants of antenatal care use among Bhutanese women. It also illustrates the association between each explanatory variables and dependent variable using bivariate and multivariate analyses.

4.1 Sample description

Out of 20,383 female respondents, 710 women gave birth in the past 1 year prior to the survey. Therefore, this study illustrates the result from the data analysed from 710 samples.

4.2 Antenatal care use

From the total of 710 women, 634 (89.3 per cent) visited hospital to seek antenatal care for at least once while remaining 76 women (10.7 per cent) did not visit even once during the course of pregnancy as cited in the Table 3.

Table 3: Antenatal care utilisation

Antenatal care	Numbers	Percent
Yes	634	89.3
No	76	10.7
Total (N)	**710**	**100**

Source: BLSS, 2012

4.3 The pattern of Antenatal care use

Owing to free health care and the introduction of MCH services in Bhutan, use of antenatal care increased drastically to 87.9 per cent from 51 per cent between the year 2000 and 2010. As observed, the pattern of antenatal care use has been increasing for the last 10 years. However, this study observed that the antenatal care utilisation pattern has failed to follow the same pattern from the previous years.

4.4 Determinants of antenatal care utilisation

4.4.1 Individual characteristics

Maternal ages of women were categorised into three groups. The mean age of the study population (15-49) was 27.07 years. Around 37 per cent of mothers fell under the age group of 15-24, 51 per cent were within the age group of 15-34 and, those 35 years and above comprised to 12 per cent.

Parity was classified into three groups. Women who had given birth to a first child at the time of the survey; they were classified as “0 child.” Women who gave birth to

second child were classified as “1 child,” and “2 or more” for those who had third or fourth child respectively in the last 1 year prior to survey. As per the information collected, women with “0 child” comprised of 36.8 per cent, and those with “1 child” was 32.4 per cent and “2 or more” totaled to 30.8 per cent. Mean number of child ever born observed was 2.25.

4.4.2 Socio-economic characteristics

Women who never attended any kinds of education were classified as “no education,” while those who attended school for minimum till sixth grade were classified as “primary education.” Attainment of education level of grade seven and above was classified as “middle sec & above.” From the information collected, around 50 per cent of women were found to have no education. Women with primary education added up to 12.7 per cent; 32.5 per cent of women were those who have attended the education of middle sec; and Secondary education and above comprised of 4.6 per cent.

Women who were involved in any kind of work in last 7 days at the time of data enumeration were classified as “working” [see Block 1.5 in appendix 4] otherwise “not working.” Accordingly, from the frequency distribution, difference between the working and not working women was very minimal. Analysis observed 49.7 per cent of women were working and 50.3 of women were not working.

Wealth index was classified based on the possession of household assets in the household. It was categorised as “0” if the household did not possess any asset and “1” if the household possessed an assets such as, motorbike/scooter, heater, seshu gho/kira, family car, computer/laptop, washing machine, sewing machine, television, micro wave, modern stove, camera etc. [see Block 3 in appendix 4] Each household was assigned a score depending on the possession of assets and ranked them between 0 to 10. Further, it was constructed into quintile and classified into five groups, such as very poor, poor, middle, rich and very rich. However, for the study analysis, same groups was recoded into three groups as, “rich”, “middle” and “poor”. Analysis observed that half of the study population fell under the category of poor, i.e. 48.30 per cent while 17.80 and 34 per cent were middle and rich households.

4.4.3 Community characteristics

Place of residence was classified as “rural” and “urban.” Center towns in each dzongkhags were defined as “urban” and the remaining areas were classified as “rural.” This study found that 66 per cent of the study population resided in rural area and the rest 34 per cent lived in the urban area.

Variable distance determines the travelling distance between the woman’s house and the nearest health centre. It was divided into four groups, such as “Less than 30 mins”, “30 mins- 1 hour”, “1 hour -2 hours” and “more than 2 hours.” As observed,

66.7 per cent of women lived within the distance less than 30 minutes; 14 per cent lived between the distances of 30 minutes; 10.5 per cent lived between the distance of 1-2 hours, and 8.8 per cent of women resided more than 3 hours walking distance from the nearest health centre.

Region was divided into three parts according to the research norms of Bhutan. They are, eastern, western and central. Eastern region is the composite of 6 Dzongkhags, western composites of 7 Dzongkhags and Central for 7 Dzongkhags [see appendix 1]. From the data collected, 28.7 per cent sample was from eastern region, 47.6 per cent from western, and 23.8 per cent from central region.

The variable mode of transportation was classified as “by foot” and “others.” Those women who reported that they had to travel to health centres by foot at the time of data collection was classified as, “by foot” otherwise “others.” Term “others” were assigned to those who travelled by personal car, bus, motorbike and bicycle. Observation from the data analysis revealed, 55.8 per cent of women traveled to health centre by foot and 44.2 by other mode of transportation.

Table 4: Percentage of women who seek antenatal care during their pregnancy in last 12 months prior to the survey (N=710)

Variable	Categories	Per cent
Maternal age		
	15-24	37.4
	25-34	50.9
	35+	11.7
	Total	100
	Mean age (years)	27.0
Parity		
	0 child	36.8
	1 child	32.4
	2+	30.8
	Total	100
	Mean no. of birth	2.25
Education level		
	No Education	50.1
	Primary Education	12.7
	Middle Sec Education	32.5
	Secondary & Above	4.6

Contd..

Variable	Categories	Per cent
Education level		
	Total	100
Work Status		
	Not working	50.3
	Working	49.7
	Total	100
Wealth Index		
	Poorest	19.9
	Poor	20.0
	Middle	20.0
	Rich	20.0
	Richest	20.9
	Total	100
Residence		
	Rural	66.0
	Urban	34.0
	Total	100

Contd...

Variable	Categories	Per cent
Distance		
	<=30 mins	66.7
	30 mins-1hr	14.0
	1 hr-2 hrs	10.5
	>3hrs	8.8
	Total	100
Region		
	Eastern	28.7
	Western	47.6
	Central	23.8
	Total	100
Transportation		
	On Foot	55.8

Contd..

Variable	Categories	Per cent
Transportation		
	Others	44.2
	Total	100

Source: BLSS, 2012

4.4.4 Association between the explanatory variables and the antenatal care

This section examines the bivariate relationship of each characteristics of a woman with their behaviour in seeking antenatal care service visit by using Chi-square (x^2) test and the relationship is established at 0.001 and 0.01 and 0.05 significance level. Its association and the percent distribution of ANC utilisation is illustrated in Table 5.

As discussed in section 2.5.1 various studies revealed younger women are less likely to seek antenatal care than older women (Bhatia & Cleland, 1995; Campbell, 1995; M.D & K.E., 2010). This study observed maternal age and antenatal care utilisation are highly associated ($p<0.001$).

Number of studies suggests likelihood in seeking antenatal care decreases with the increase in number of children (*National Collaborating Centre for Women's and*

Children's Health (UK). Antenatal Care: Routine Care for the Healthy Pregnant Woman. , 2003). Mothers who have had 0 parity are more likely to seek antenatal care than those who already had 1 parity or more (Lumbiganon, Laopaiboon, Panamonta, & Pothinam, 1992). Relationship between parity and antenatal care utilisation is found to be significant ($p<0.05$).

Level of education as identified in chapter 2 understands that it has a very strong association with the antenatal care utilisation. Higher the level of education, likelihood in seeking antenatal care increases as revealed from numerous studies (Shrestha & Shrestha, 2011). Data analysis from this study depicts education and antenatal care utilisation are strongly associated ($p<0.01$)

Similarly, work status is said to have stronger influence on ANC utilsation. In this second, the analysis report shown in table 6 exhibits that they are significantly associated ($p<0.001$). Similar to discussion made in section 2.5.12, urban women are more likely in seeking antenatal care than women residing in rural are. This analysis exhibits, association between place of residence and ANC utilisation are significantly associated ($p<0.001$).

From the literature, it is observed distance and physical accessibility are the two main components that women respond in utilisation of antenatal care (Leslie &

Gupta, 1989). In contrast, the result from this study reveals distance and antenatal care utilisation are not associated.

Variable region shows to have statistically and significant association with the antenatal care at the p value of less than 0.001. In this support, literature review under the section 2.5.14 also observed ANC utlisation differed with regions. Similarly, relationship between the mode of transportation and use of antenatal care is found to be significant at the p value less than 0.001

Table 5: Per cent distribution of antenatal care utilisation and its association with the explanatory variables

Dependent variable	Antenatal care received		Chi square (x^2)
	No	Yes	
Maternal age			
15-24	5.9	31.5	
25-34	4.0	46.8	19.59***
35+	2.9	8.9	
Parity			
0 child	3.2	33.7	
1 child	4.2	28.2	8.74**
2+children	5.4	25.4	

Contd...

Dependent variable	Antenatal care received		Chi square (x^2)
	No	Yes	
Level of education			
No Education	9.0	44.1	
Primary Edu	1.7	11.6	15.60***
Middle Sec & Above	2.0	31.5	
Work status			
Working	4.2	46.1	12.79***
Not working	8.6	41.1	
Wealth Index			
Poor	8.7	39.5	
Middle	1.7	16.0	17.39***
Rich	2.3	31.7	

Contd..

Dependent variable	Antenatal care received		Chi square (x^2)
	No	Yes	
Place of Residence			
Rural	10.9	55.2	
Urban	1.9	32.1	17.03***
Distance			
<=30 min	7.7	58.9	
30min-1hr	1.9	12.1	2.34
1hr-2hr	1.5	9.1	
>2hr	1.6	7.2	
Region			
Western	3.3	44.3	21.71***
Central	3.6	20.2	

Contd..

Dependent variable	**Antenatal care received**		**Chi square (x^2)**
	No	**Yes**	
Mode of transportation			
On foot	9.6	46.2	
Others	3.2	41.0	15.04***

Source: BLSS, 2012

4.4.5 Multi-collinearity test

Test for correlation between the explanatory variables is presented in this section in order to see the linear relationship between the two variables. Pair-wise correlations among the explanatory variables and variance inflation factor for explanatory variables are tested (see appendix 2 & 3). From these two tests, it is observed that there is no multi-collinearity between the explanatory variables.

4.4.6 Logistic regression analysis

This section illustrates the result from the logistic regression analysis as shown in Table 6 below. The table exhibits the factors describing the likelihood of utilisation of antenatal care services by all reproductive age women of Bhutan during their

course of pregnancy. All the analyses for this study are conducted with the weighted data.

Data suggests that odds of seeking antenatal care increase with age. However, older they grow, ANC seeking behaviour do not show significant. Women age between 25-34 are 2.48 times likely to use antenatal care compared to those women who are age between 15-24 at the p value less than 0.05. For those women who are 35 years and above are 1.22 times likely to use antenatal care.

Parity exhibits to have negative and significant effect on women's use of ANC services. Data suggests mulitparous women are less likely to use antenatal care than nulliparous women. Increase in number of children decreases the odds of seeking antenatal care. The odds ratio indicates that women who have one child do not affect the ANC utilisation however; having two or more children is negatively and significantly associated. Likelihood in seeking antenatal care decreases by 0.46 times.

Socio-economic characteristic appears to have less hindrance on ANC services utilisation. Education level and wealth index claims to have positive effect but they do not prove to have any significant effect on antenatal care use. The literature reviewed indicated that higher the level of education increases the likelihood of seeking antenatal care. In contrast, the result from this current study indicated that education has no significant effect on antenatal care utilisation among Bhutanese women, although it denoted positive effect of education. Interestingly, descriptive

statistics from this study observed around 50 per cent of Bhutanese women are uneducated. Despite having 50 per cent women uneducated, it does not hinder them from seeking ANC services. This may pertain to free universal health care services and reproductive health care sensitisation programme.

Many studies suggest that economic status of the woman has a positive effect on ANC use. Use of ANC services increases with the increase of economic status (WHO, 2003). However, the analysis from this study observed higher economic status measured by the possession of assets (wealth index) has no significant effect on the utilisation of ANC although the association exhibited positive. This would possibly be the result of free health care system in Bhutan. It is clearly enacted under the article 9 of the constitution of Kingdom of Bhutan stating "The State shall provide free access to basic public health services in both modern and traditional medicines." Therefore, the result indicated that Bhutanese women have no financial barrier in seeking antenatal care during their pregnancy. In this second, an annual health bulletin, 2012 reported that the least health expense per year that one household has to spend is Nu. 618, which includes consultation fee, medicine, transportation cost and other expenses. In contrast, a study from Ghana in 2005 observed that despite the introduction of free maternal health care policy in 2005, no effect was found on the utilisation of ANC among the poor women (Arthur, 2012). A similar result was observed from a study conducted by McCray (2004) in rural areas in a

northern part of Kwa Zulu Natal, South Africa. The author observed that the possession of household assets did not have any association with the utilisation of antenatal care.

Work status indicated negative association with ANC utilisation. Result obsereved, odds of ANC utilisation decrease when women do not work. Analysis found that those women who do not work are 51 per cent less likely to use antenatal care than working women at the p value of 0.05.

Association between the community characteristics and antenatal care is shown very minimal. Data suggest women in western region are more likely to use antenatal care than eastern and central region. Odds of ANC utilisation increases when women live in western region. Analysis exhibits women residing in western region are 1.70 times more likely to use antenatal care than those women living in eastern region at the p value of 0.10. Central region does not show to have significant effect on ANC, however, they indicated positive.

Other three community variables such as, residence, distance and mode of transportation are observed to have no significant effect on antenatal care usage. Analysis observed women residing in urban area are 1.7 times more likely to seek ANC than women residing in rural area. Although the ANC seeking behaviour showed positive but it did not show any significant effect. Similarly, various studies observed that distance hinders pregnant women from seeking antenatal care. Longer the

distance, likelihood in seeking antenatal care among pregnant women decreases (Leslie & Gupta, 1989; Ye et al., 2010). In contrast, this study revealed that in Bhutan, distance has no effect on antenatal care utilisation. The reason for having no significant effect of distance on antenatal could be because 90 per cent of Bhutanese population lives within a walking distance of less than 3 hours from the health care centre (*National Health Policy* 2011). Secondly, continuous awareness programme on reproductive health in the country brought everybody's attention on the importance of antenatal care and its consequences.

Study observed that 46.2 per cent of respondents travelled to health care centre by foot while only 41 per cent by other mode of transportation (personal car, bus, motor bike, etc.). This would corroborate the result from the variables distance and residence as it is clearly learnt that only 10 per cent of population lives more than three hours walking distance from the health centre; thus, indicating mode of transportation has no effect on Bhutanese women for utilising ANC services.

Therefore, impeding factors for the non-utilisation of antenatal care services in Bhutan as identified from this study are; maternal age, parity, work status and region. In addition, very minimal increase (1 per cent) is observed since 2010. ANC services utilisation from this data (2012) observed 89 per cent coverage.

Values observed for log likelihood and R^2 represents that this set of data fits well in describing antenatal care utilisation. Value of R^2 indicates that this set of data explains 86 per cent variability of the response data.

Table 6: Logistic regression analysis of likelihood of factors affecting the utilisation of antenatal care in Bhutan (2012)

Variables		Odds Ratio	SE
Individual characteristics			
Age	15-24	1	
	25-34	2.476**	.314
	35+	1.216	.416
Parity	0 child	1	
	1 child	.610	.327
	2+	.463**	.378
Socio-economic characteristics			
Education Level	No Education	1	
	Primary Education	1.148	.360
	Middle sec & Above	1.681	.363

Contd..

Variables		Odds Ratio	SE
Work Status	Working	1	
	Not working	.492**	.274
Wealth Index	Poor	1	
	Middle	1.067	.385
	Rich	1.130	.378
Community Characteristics			
Place of Residence	Rural	1	
	Urban	1.671	.373
Distance	<=30 mins	1	
	30 mins-1hr	1.435	.367
	1 hr-2 hrs	1.526	.396
	>3hrs	1.197	.404

Contd..

Variables		**Odds Ratio**	**SE**
Region	Eastern	1	
	Western	1.699*	.325
	Central	1.209	.301
	>3hrs	1.197	.404
Transportation	By foot	1	
	Others	1.470	.291
R^2			0.86
-2 Log likelihood			462.749
Number of observation			710

Note: * P<0.10, **p<0.05, ***p<0.001

Source: BLSS, 2012

CHAPTER 5

DISCUSSIONS AND CONCLUSIONS

5.1 Introduction

This concluding chapter aims at providing discussions and policy implications based on the study's findings. The chapter begins with a brief review of the study in the context of the research objective and the discussion of the major findings related to the influences on women's use of antenatal care services. Then, the key policy implications of the study are discussed and the contributions made to antenatal research are presented. In the final section, directions for future research are suggested.

5.2 A Brief Review of the Thesis

The main purpose of this study is to address the issue of non-utilisation of antenatal care services in Bhutan. Over the past decade, Bhutan had a relative success story in improving the utilisation of antenatal care services and hospital deliveries. However, the most recent statistics still showed that around 12 per cent of women do not receive any antenatal care. According the WHO guideline that all women must have at least one antenatal visit, such non-use per cent, although minimal, was served as the impetus for this thesis to investigate the reasons why these Bhutanese women did not seek antenatal care.

By examining the BLSS 2012 data via logistic regression analysis, the study found several individual and socio-economic factors influencing the utilisation of antenatal care. Factors that are identified hindering Bhutanese women from seeking antenatal care are age, parity, work status and region and they are discussed briefly in the following paragraphs.

Younger women who have negative attitudes in seeking antenatal care services was observed from the literature review in Chapter 2. Findings from the data analysis also reveals that maternal age has influence on Bhutanese women in seeking ANC services. Younger Bhutanese women are less likely to seek antenatal care than older Bhutanese women and older the women grow; they are less likely to seek ANC services. Various studies have also observed that younger the women are, the likelihood in ANC utilisation services decreases (Bhatia & Cleland, 1995; Campbell, 1995; M.D & K.E., 2010). Similar study conducted by Campbell (1995) in United States observed women whose age are lesser than 20 years have lower social pregnancy identity and lesser positive attitudes towards seeking health care services during pregnancy than those women older than 20 years.

Number of children ever born also affects the ANC seeking behaviour. Likelihood of seeking ANC is higher among the nulliparous women than multiparous women (Lumbiganon et al., 1992). Similarly, numbers of studies suggests likelihood decreases with the increase in number of children (*National Collaborating Centre for Women's*

and Children's Health (UK). Antenatal Care: Routine Care for the Healthy Pregnant Woman. , 2003). Like various studies, this study also observed, likelihood in seeking antenatal care service is higher among nulliparous women than multiparous women.

Work status of women obstructs pregnant women from seeking antenatal care. Working women are more likely to seek ANC than those women who do not work. Result observed from this study exhibits that in Bhutan, not-working women are less likely to seek ANC than working women. This result is consistent with the finding from the study conducted in Nigeria by Awusi et al. (2009).

The ANC-seeking behaviour also varies with region. The results from this study discovered that women in Western region are more likely to seek antenatal care, compared to those women living in Eastern and Central region, although they do not show statistically significant. Reasons could be because all the government headquarters and most of the private headquarters are situated in Thimphu Dzongkhag which falls under Western region and it is also the highest populated region in Bhutan. In addition, Western region is more developed compared to the other two regions and the health care services are easily accessible. This finding echoes the result from the previous study carried out in Bangladesh, where the western region, in which the two biggest cities are situated, namely, Dhaka and Rajshahi have positive effect on ANC utilisation (Rahman, Islam, & Islam, 2008).

From the Pearson's chi square results, all the explanatory variables indicated that there is a significant association with the antenatal care utilisation (see Table 5). However, while running multiple logistic regression analysis, education, wealth, place of residence, distance and the mode of transportation showed insignificant effect on the antenatal care utilisation indicating that they do not determine the utilisation of antenatal care.

5.3 Comparison of antenatal care utilisation from the literature review and result

This section provides a brief discussion on the direction of antenatal care utilisation of each variable that was identified from the literature review and the direction these variables suggests from the result as shown below in Table 7. In the Table 7, term "positive" denotes increase in antenatal care utilisation, "negative" denotes decrease, and "no effect" denotes that the explanatory have no significant effect on antenatal care utilisation. The table follows the same reference values from Table 6.

Table 7: Comparison of antenatal care utilisation from the literature review and result

Variables	Direction from the literature review	Direction from the result
Maternal Age	Positive	Positive
Parity	Negative	Negative
Education Level	Positive	No effect
Work Status	Positive	Positive
Wealth Index	Positive	No effect
Distance	Negative	No effect
Place of Residence	Positive	No effect
Region	Positive	Positive
Mode of Transportation	Positive	No effect

5.4 Policy implication of the Study

This study's findings raise concern about Bhutanese women's reproductive health knowledge. Even though the universally free health care services have increased the antenatal care utilisation, some pregnant women residing in Central and Eastern regions and not currently working still did not receive any antenatal care. Learning that 50 per cent of these women had no education and live in rural area, the reproductive health knowledge may have to be disseminated informally through other measures such as calling of periodic gathering of community both in rural and

urban areas and sensitise on the importance of maternal health and consequences of failure to visit antenatal care. Provide a caravan services on MCH information during every annual Tshechu in all the Dzongkhags where all the people of Dzongkhags and villages gather so that the information can be easily disseminated.

The formal education cannot be neglected as it is the best avenue for disseminating the information widely. The government needs to encourage the formal education enrollment among women and to ensure that the topic of reproductive health is covered in the basic education curriculum. Findings from maternal age reveal that women whose ages are between 25-35 are more likely to use antenatal care than other age groups. This raises the concern for the younger and older women as they did not seek ANC services. Therefore, government must target and encourage these two groups because they are from different generations.

Around 50 per cent of Bhutanese women do not work. Government must stress on encouraging women who do not work because they did not seek antenatal care services. Introduction of some special programme for not-working women and uneducated women may help increase the ANC utilisation among these groups.

5.5 Contribution to Antenatal Care Research

No systematic study on the issue of antenatal care utilisation is conducted in Bhutan thus far. This study have observed that the data focuses more at the household and national level rather than at the individual level with less emphasis on the effects of

socio-economic factors. Moreover, the socio-economic status of women as well as households would have been less frequently used in health and clinical study including the ANC and its outcome. The other reasons such as cultural beliefs and ideas about pregnancy could have attributed to 'no effect' on the utilisation of ANC from the socio-economic perspective and to fill the gap specific to socio-economic status approach, for example, education level, need to be reassessed in future study. In order to fill the gap in literature, more qualitative research is required in future to explore the effect of women's satisfaction, gender role, autonomy, etc. in decision making process in enabling adequate utilisation of ANC. Therefore, to achieve adequate utilisation of ANC, further study on the overall socio-economic and demographic status of women to be examined, not just merely establishing more health care facility to fill the research gap for a country like Bhutan.

5.6 Direction of Future Research

In order to achieve adequate utilisation of antenatal care services in Bhutan following the study may be applied in the future research.

1. Qualitative research to assess user's satisfaction and quality of antenatal care service as it is suggested in literature to have impact on the non-use of antenatal care.

2. Include more questions regarding the use of ANC in the survey, e.g. how many ANC visits? With this information, we will be able to explore the continuity of ANC service use.
3. Information on husband's education, use of family planning and listening to radio and watching TV since these are learned to have effect on antenatal care utlisation from the literature.

   In order to explore greater utilisation of antenatal care, more focus of data analysis at individual as well as household levels to be pursued further.

REFERENCES

Alexandre, P. K., Saint-Jean, G., Crandal, L., & Fevrin, E. (2005). Prenatal care utilization in rural areas and urban areas of Haiti (pp. 84–92): Rev Panam Salud Publica.

Amy O. Tsui, Judith N. Wasserheit, & Haaga, J. G. (1997). Reproductive Health in Developing Countries.

. Annual Health Bulletin (P. P. D. Health Information Unit, Ministry of Health, Royal Government of Bhutan, Trans.). (2011). Thimphu.

. Antenatal Care in Developing Countries: Promises, achievements and missed opportunities (1990-2001). (2003). Geneva: WHO.

Antenatal Care- routine care for healthy pregnant women. (March 2008). London: National Institute for Clinical Excellence

Arif, M. S. (2005). *Determinants of use of Maternal care services: Evidences from Kanchanaburi Province, Thailand.* (Master), Mahidol University Thailand.

Arthur, E. (2012). Wealth and antenatal care use: implications for maternal health care utilisation in Ghana. *Health Econ Rev*, 14. doi: 10.1186/2191-1991-2-14.

Awusi, V. O., Anyanwu, E. B., & Okeleke, V. (2009). DETERMINANTS OF ANTENATAL CARE SERVICES UTILIZATION IN EMEVOR VILLAGE, NIGERIA. *Benin Journal of Postgraduate Medicine, 11*.

Banta, D. (2003). *What is the efficacy/effectiveness of antenatal care and the financial and organizational implications?* Copenhagen: Health Evidence Network: WHO Regional Office for Europe.

Bhatia, J. C., & Cleland, J. (1995). Determinants of maternal care in a region of South India *Health Transition Review* (pp. 127-142).

BMIS. (2010). National Statistics Bureau: Bhutan Multiple Indicator Survey. Thimphu.

Bureau, N. S. (2007). Bhutan Living Standard Survey (Vol. 2). Thimphu.

Campbell, J. D. (1995). Validating a model develped to predict prenata care utilization. *Journal of Family Practice*.

Celik, Y., & Hotchkiss, D. R. (2000). The socio-economic determinants of maternal health care utilization in Turkey. (0277-9536 (Print)).

Coreil, J. (2010). *Social and behavioral foundations of public health*. Los Angeles: Sage.

Evans, R. (1994). STRESS, BODIES & ILLNESS. In J. Mikkonen & D. Raphael (Eds.), *Social Determinants of Health- The Canadian Facts* (pp. 10-11). Toronto: York University School of Health Policy and Management.

Facts for Life. (1993). (2 ed.). New York: UNICEF, WHO, UNESCO and UNFPA.

Fast Facts: The Consequences of Unplanned Pregnancy. (2008). *The National Campaign to Prevent Teen and Unplanned Pregnancy*.

Garg, B. S. (2006). *SAFE MOTHERHOOD: SOCIAL, ECONOMIC, AND MEDICAL DETERMINANTS OF MATERNAL MORTALITY* (2 ed.).

Hpyertension in Pregnancy- The management of hypertensive disorders. (2010). Manchester: NICE

Impact of Physical Activity during Pregnancy and Postpartum on Chronic Disease Risk. (2006). *Official Journal of the American College of Sports Medicine*.

Johnson, C. E. (2011). Sexual health during pregnancy and the postpartum(CME). *The Journal of Sexual Medicine, 8*(5), 1267–1284.

Larsen, P. D. (2009). Illness Behavior *Chronic illness : impact and intervention* (7 ed., pp. 23-42). Sudbury: Jones and Bartlett Publishers.

Leslie, J., & Gupta, G. R. (1989). Utilisation of Formal Services for Maternal Nutrition and Health Care in the Third World. *Maternal Nutrition and Health Care Program of the International Center for Research on Women*, 76.

Lia-Hoagberg, B., Rode, P., Skovholt, C., Oberg, C., Berg, C., Mullett, S., & Choi, T. (1990). Barriers and motivators to prenatal care among low-income women. *Soc Sci Med*, 487-495.

Lumbiganon, P., Laopaiboon, M., Panamonta, M., & Pothinam, S. (1992). Factors associated with failure to receive antenatal care. (0004-8666 (Print)).

M.D, D., & K.E., O. (2010). Factors Affecting the Utilization of Antenatal Care Services in Ibadan, Nigeria. *2*(1), 10.

MD, L. F. (2008). INDOOR AIR POLLUTION, Children's Health and the Environment, WHO Training Package for the Health Sector.

Magadi, M. A., Madise Nj Fau - Rodrigues, R. N., & Rodrigues, R. N. (2000). Frequency and timing of antenatal care in Kenya: explaining the variations between women of different communities. (0277-9536 (Print)).

McCray, T. M. (2004). An issue of culture: the effects of daily activities on prenatal care utilization patterns in rural South Africa. *Social Science & Medicine*, 1843–1855.

Millennium Development Goals Report. (2010). New York: United Nations Department of Economic and Social Affairs

The Millennium Development Goals Report. (2012). New York: United Nations.

MoH. (2000). A Report, National Health Survey (D. o. H. Sevices, Trans.). Thimphu.

MoH. (2013). Reproductive Health and Population Development Programme. Retrieved 2nd February 2013, from http://209.61.208.233/LinkFiles/Reporductive_Health_Profile_population.pdf

National Collaborating Centre for Women's and Children's Health (UK). Antenatal Care: Routine Care for the Healthy Pregnant Woman. . (2003). London: RCOG Press.

National Collaborating Centre for Women's and Children's Health (UK). Antenatal Care: Routine Care for the Healthy Pregnant Woman. (2008). London: RCOG Press.

. *National Health Policy* (2011). Thimphu Ministy of Health.

Noh, S., Gagne, J.-P., & Kasper, V. (1994). Models of Health Behaviors and Compliance: Applications to Audiological Rehabilitation Research (pp. 375-389): JARA MONOGR. SUPPL.

NSB. (2005). Population and Housing Census of Bhutan. Thimphu

Postpartum Hemorrhage: A Challenge for Safe Motherhood. (2006). Retrieved 25 January 2013, from http://gynuity.org/resources/read/postpartum-hemorrhage-a-challenge-for-safe-motherhood-en/

Rahman, M. M., Islam, M. R., & Islam, A. Z. (2008). Rural-Urban Differentials of Utilization of Antenatal Health Care Services in Bangladesh *Health Policy and Development* (Vol. 6, pp. 117-125).

RGOB. (2002). Millennium Development Goals Progress Report of Bhutan (pp. 49). Thimphu.

RGOB. (2005). Millennium Development Goals Progress Report of Bhutan (pp. 87). Thimphu.

Rosenstock, I. M., Strecher, V. J., & Becker, M. H. (1994). The Health Belief Model and HIV Risk Behavior Change. In R. J. DiClemente & J. L. Peterson (Eds.), *Preventing AIDS: Theories and Methods of Behavioral Interventions* (pp. 5-24). New York: Plenum Press.

. Safe Motherhood. (2002) *Facts for Life* (3 ed.). New York: UNICEF, WHO, UNESCO, UNFPA, UNDP, UNAIDS, WFP and the World Bank.

Shrestha, G., & Shrestha, G. (2011). Statistical Analysis of Factors Affecting Utilization of Antenatal Care in Nepal. *Nepal Journal of Science and Technology, 12*, 268-275.

Singh, P. K., Rai, R. K., Alagarajan, M., & Singh, L. (2012). Determinants of Maternity Care Services Utilization among Married Adolescents in Rural India. *PLoS ONE*. doi: 10.1371/journal.pone.0031666

Statistical Yearbook for Asia and The Pacific. (2011). Thailand: United Nations ESCAP.

Tariq, S., Elford J Fau - Cortina-Borja, M., Cortina-Borja M Fau - Tookey, P. A., & Tookey, P. A. (2012). The association between ethnicity and late presentation to antenatal care among pregnant women living with HIV in the UK and Ireland. (1360-0451 (Electronic)).

Suchman, E. A. (1966). Health orientation and medical care. (0002-9572 (Print)). doi: D - NLM: PMC1256789 EDAT- 1966/01/01 MHDA- 1966/01/01 00:01 CRDT- 1966/01/01 00:00 PST - ppublish

. Terms for Referencene for Review of Reproductive Health Programme (H. M. o. Health, Trans.). (2010). Thimphu.

Tewodros, B., G/Mariam, A., & Dibaba, Y. (2009). FACTORS AFFECTING ANTENATAL CARE UTILIZATION IN YEM SPECIAL WOREDA, SOUTHWESTERN ETHIOPIA. *Ethiop J Health Sci., 9*(1), 45-51.

Tran, K. T., Gottvall, K., HNguyen, D., Ascher, H., & Petzold, M. (2012). Factors associated with antenatal care adequacy in rural and urban contexts-results from two health and demographic surveillance sites in Vietnam. (1472-6963 (Electronic)). doi: D - NLM: PMC3305637 EDAT- 2012/02/18 06:00 MHDA- 2012/06/26 06:00 CRDT- 2012/02/17 06:00 PHST- 2011/06/28 [received] PHST- 2012/02/15 [accepted] PHST- 2012/02/15 [aheadofprint] AID - 1472-6963-12-40 [pii] AID - 10.1186/1472-6963-12-40 [doi] PST - epublish

Trinh, H. N. (2012). *Ethnic Disparities in Prenatal Care Utilisation in Vietnam.* (Master), UTAH STATE UNIVERSITY, Utah.

Villar, J., Ba'aqeel H Fau - Piaggio, G., Piaggio G Fau - Lumbiganon, P., Lumbiganon P Fau - Miguel Belizan, J., Miguel Belizan J Fau - Farnot, U., Farnot U Fau - Al-Mazrou, Y., . . . Garcia, J. (2001). WHO antenatal care randomised trial for the evaluation of a new model of routine antenatal care. (0140-6736 (Print)).

Villar, J., & Bergsjo, P. (2003). *WHO antenatal care randomized trial : manual for the implementatin of the new model / [prepared by J. Villar and P. Bergsjø].* Switzerland: Geneva : UNDP/UNFPA/WHO/World Bank Special Programme of Research, Development, and Research Training in Human Reproduction, Dept. of Reproductive Health and Research, Family and Community Health, World Health Organization, 2002.

Wagstaff, A., & Claeson, M. (2004). *Millennium Development Goals for health: Rising to the Challenges*. Washington: The World Bank.

WHO. (2009). Briefing Note on Achieving Millennium Development Goal 5. Switzerland: Department of Reproductive Health and Research.

WHO. (2013). Health Services Coverage Statistics: Antenatal care coverage (percentage). Retrieved 26 January, 2013, from http://www.who.int/healthinfo/statistics/indantenatal/en/index.html

Wilcox, L. S., & Marks, J. S. (1994). *CDC's Public Health Surveillance for Women, Infants, and Children*: U.S. Department of Health and Human Services.

Ye, Y., Yoshida, Y., Harun-Or-Rashid, M., & Sakamoto, J. (2010). Factors affecting the utilization of antenatal care services among women in Kham District, Xiengkhouang province, Lao PDR. *Nagoya J Med Sci*, 23-33

Young, J. C., & Garro, L. C. (1982). *Medical Choice in a Mexican Village*: Waveland Press.

APPENDIX

Appendix 1

List of Dzongkhags

Region	Dzongkhags
Western	Thimphu
	Paro
	Haa
	Samtse
	Chukha
	Punakha
	Gasa
Central	Wangdue Phodrang
	Dagana
	Tsirang
	Sarpang
	Zhemgang
	Trongsa
	Bumthang
Eastern	Lhuntse
	Mongar
	Pemagatshel
	Samdrupjongkhar
	Trashigang
	Trashiyangtse

APPENDIX 2

Multi-collinearity Test: Pair-wise correlation among the explanatory variables used in the regression analysis

Variables	Maternal Age	Parity	Education Level	Work Status	Wealth Index	Residence	Distance	Region	Transportation
Maternal Age	1								
Parity	.487	1							
Education Level	-.041	-.283	1						
Work Status	.081	-.031	.114	1					
Wealth Index	.157	-.042	.460	-.126	1				
Residence	.020	-.063	.229	-.286	.479	1			
Distance	-.027	.045	-.250	.205	-.434	-.463	1		
Region	-.038	-.010	.012	-.100	.056	.087	-.033	1	
Transportation	.001	-.130	.254	-.110	.306	.222	-.133	.121	1

85

APPENDIX 3

Multi-collinearity Test (2) Variance inflation factor (VIF for explanatory variables

Variables	Tolerance	VIF
Maternal age	.714	1.401
Parity	.684	1.461
Education level	.676	1.479
Work Status	.841	1.189
Wealth Index	.566	1.767
Residence	.648	1.542
Distance	.714	1.400
Region	.973	1.028
Transportation	.860	1.163

APPENDIX 4

BHUTAN LIVING STANDARD SURVEY 2012

QUESTIONNAIRE

HOUSEHOLD IDENTIFICATION

HH1. Dzongkhag : ____ ☐☐

HH2. Town / Gewog: ____ ☐☐

HH3. Block / Chiwog Number: ____ ☐☐

HH4. Chiwog / Block:

HH5. Structure Number (urban only): ____ ☐☐

HH6. Household Serial Number: ____ ☐☐

HH7. Name of the head of household:

HH8. Phone/Mobile No.

HH9. Interviewer's name and signature	Name	Signature
HH10. Supervisor's name and signature :	Name	Signature

HH11. Date of interview (day/month): ☐☐ / ☐☐ / 2012

HH12. Date of control by supervisor (day/month): ☐☐ / ☐☐ / 2012

HH13. Status of questionnaire:

1. Completed
2. Not completed due to refusal
3. Not completed, household not found
4. Incomplete

☐

BLOCK 1.1 - DEMOGRAPHICS (ALL MEMBERS)

Sl. No.	Name

D1. Sex
1. Male 2. Female

D2. Relationship to the head (Copy from household roster)

D3. Age in completed years (Copy from household roster)
(if less than 1year, write 000)

D4. Marital status
1. Never Married (>>D6)
2. Living together (>>D6)
3. Married
4. Divorced
5. Seperated
6. Widow/ widower

D5. How old was [NAME] at first marriage?

D6. Nationality
1. Bhutanese 2. Non-Bhutanese

D7. Member status
1. Usual member (>>D9)
2. Visiting member

D8. Duration of the stay in the household?

After replying to question D8,>> next member

M onths Days

D9. Is [NAME] currently present in the household?
1. Yes (>> Block 1.2)
2. No

D10. For how long has [NAME] been away from the household?

Months

BLOCK 1.2 - EDUCATION (IF AGE BELOW 3, >> BLOCK 1.3)

ED1. Can [NAME] read and write a short text in:

1. Yes
2. No

Dzongkha | Lotsham | English | Other Language

ED2. Has [NAME] attended school /institute?
1. Now
2. Past (>>ED11)
3. Never (ED12)

ED3. What is the grade/level currently attended by [NAME] ?

(00) Pre-primary
(01) Grade 1
.....
(12) Grade 12
(13) VTI certificate
(14) Diploma
(15) Bachelors degree
(16) Masters degree
(17) Above Masters
(18) ECCD/Day Care
(19) Other(specify)_____

ED4. What type of school/institute is [NAME] attending ?
1. Public
2. Private

ED5. Where does the [NAME] currently attending school/ institute?
1. Bhutan
2. Outside Bhutan (>> next member)

ED6. How do [NAME] usually go to school/institute?
1. Boarding (>>ED8A)
2. On foot
3. Family vehicle
4. Public transport
5. Other(specify)_____

ED7. How long does it usually take for [NAME] to >> school/ institute (one-way)?

Hours Minutes

ED8A. How much do you have to pay for this academic year for (Nu.):(**New entrant only**)
1. Token Fee/School Dev fund
2. Boarding Fees
3. Books, supplies
4. Private tutoring
5. Public transport from/to school
6. Other edu. exp. (uniform, etc)

ED8B. How much did you pay for the last academic year (**Other than new entrant**):
1. Token Fee/School Dev fund
2. Boarding Fees
3. Books, supplies
4. Private tutoring
5. Public transport from/to school
6. Other edu. exp. (uniform, etc)

ED9. Did [NAME] receive any kind of scholarship?
1. Yes
2. No (>>Block 1.3)

ED10. What kind of scholarship did [Name] receive?
1. Govt Scholarship
2. NGO
3. Private
4. Other (specify) _____

After replying to question ED10, >> BLOCK 1.3

ED11. What is the highest grade/level completed by [NAME]?
(Use name codes as question ED3)

ED12.	Did [NAME] ever receive other type of learning (traditional, non-formal, self learning, other)? a. Yes, traditional b. Yes, non-formal BLC c. Yes, non-formal PLC d. Yes, self learning e. Yes, other (specify)_____ f. No (>> ED17)	☐ ☐ ☐
ED13.	Where did [NAME] attend or is attending? 1. Public 2. Private	☐
ED14.	How many years of this learning did [NAME] complete?	☐☐
ED15.	Is [NAME] attending this learning this year? 1. Yes 2. No (>>BLOCK 1.3)	☐
ED16.	Where does the [NAME] currently attending? 1. Bhutan (>>BLOCK 1.3) 2. Outside Bhutan (>> next member)	☐
ED17.	Ask only if [NAME] is aged 6 to 16 and is not attending school/institute. What is the main reason why [NAME] is not attending school/institute? 1. Not interested 2. Cannot afford 3. Needs to work at home 4. Needs to do economic work 5. Did not qualify 6. School is too far 7. Illness 8. Poor teaching 9. Too young / old 10. Problems in home 11. Caring sick relative 12. Pregnancy 13. Disability (specity)_____ 14. Other (specify)_____	☐☐

BLOCK 1.3 - HEALTH (ALL MEMBERS)

H1.	Did [NAME] suffer from sickness or injury in the last four weeks? 1. Yes 2. No (>> H7)	☐
H2.	Did [NAME] visit/consult a health provider without staying overnight in the health facility (referral hospital/hospital/BHU)? 1. Yes 2. No (>>H7)	☐
H3.	How many visits did [NAME] make? ☐ Visits	

H4.	What type of health provider did [NAME] visit? 1. JDWNRH 2. Govt. Regional Referral Hospital 3. Govt. District Hospital 4. Govt. BHU/ORC 5. Indigenious centres(Sowa Rigpa) 6. Chemist/Pharmacy 7. Other private hospital/ clinic 8. Retail shop 9. Lama/Pandit/Preist (Rimdo/ Puja) 10. Traditional practitioner (Pow/Pam, Shaman,Tsip, Terda, etc) 11. Indian Hospital paid by Govt. 12. Indian Hospital paid by self 13. Thai Hospital paid by Govt. 14. Thai Hospital paid by self 15. Relative/Friend 16. Self 17. Other (specify) _____	*First Visit* ☐☐ *Second Visit* ☐☐ *Third Visit* ☐☐ *Fourth Visit* ☐☐ *Fifth Visit* ☐☐ *Sixth Visit* ☐☐
H5.	How much did [NAME] spend on treatment and/service received (Nu.)? *Hospital Charges (consultation fees, etc)* ☐☐☐☐☐ *Purchase of medicines and health accessories* ☐☐☐☐☐ *Transportation (in-country)* ☐☐☐☐☐ *Transportation (ex-country)* ☐☐☐☐☐ *Rimdo/puja* ☐☐☐☐☐ *Traditional practitioner (Pow/ pam, shaman, Tsip, Terda)* ☐☐☐☐☐ *Other health expenditure* _____ ☐☐☐☐☐	

H6. What was the MAIN health reason for [NAME] seeking care?

1. Malaria or fever
2. Diseases of respiratory system including pneumonia
3. Skin diseases (eg. boils, lesions,etc)
4. TB
5. HIV/AIDS
6. Diabetes
7. Diahhroea
8. Intestinal worms
9. Accidents and injuries
10. STD (syphillies, etc)
11. Eye infection
12. Other (specify)____
13. Physical check up (prevention)
14. Immunizations (prevention)
15. Family planning (prevention)
16. Prenatal/Antenatal care
17. Dental
18. Circumcision
19. VCT
20. Other forms of counselling
21. Physiotherapy
22. Other services (specify)_____

First Visit ☐☐ *Second Visit* ☐☐ *Third Visit* ☐☐ *Fourth Visit* ☐☐ *Fifth Visit* ☐☐ *Sixth Visit* ☐☐

H7. Apart from the above expenses, how much did [NAME] spend on health-related commodities: routine medication, family planning(eg. condoms, pills), ORS, vitamin supplements (eg.cold liver, oil).

☐☐☐☐☐

H8. Was [NAME] admitted to stay overnight at a medical facility (referral hospital/hospital/BHU) in the last 12 months?

1. Yes
2. No (>>H13)

☐

H9. What was the type of health provider did [NAME] visit?

1. JDWNRH
2. Govt. Regional Referral Hospital
3. Govt. District Hospital
4. Govt. BHU/ORC
5. Indigenious centres(Sowa Rigpa)
6. Chemist/Pharmacy
7. Other private hospital/ clinic
8. Retail shop
9. Lama/Pandit/Priest (Rimdo/ Puja)
10. Traditional practitioner (Pow/Pam, Shaman,Tsip, Terda, etc)
11. Indian Hospital paid by Govt.
12. Indian Hospital paid by self
13. Thai Hospital paid by Govt.
14. Thai Hospital paid by self
15. Relative/Friend
16. Self
17. Other (specify) _____

First Visit ☐☐ *Second Visit* ☐☐ *Third Visit* ☐☐ *Fourth Visit* ☐☐ *Fifth Visit* ☐☐ *Sixth Visit* ☐☐

H10. How much did [NAME] spend on treatment and/service received (Nu.)?

Hospital Charges (consultation fees, cabin) ☐☐☐☐☐

Purchase of medicines and health accessories ☐☐☐☐☐

Transportation (in-country) ☐☐☐☐☐

Transportation (ex-country) ☐☐☐☐☐

Rimdo/puja ☐☐☐☐☐

Traditional practitioner (Pow/ pam, shaman, Tsip, Terda) ☐☐☐☐☐

Other health expenditure ☐☐☐☐☐
_____

H11 What was the MAIN health reason for [NAME] seeking care?

1. Malaria or fever
2. Diseases of respiratory system including pneumonia
3. Skin diseases (eg. boils, lesions,etc)
4. TB
5. HIV/AIDS
6. Diabetes
7. Diahhroea
8. Intestinal worms
9. Accidents and injuries
10. STD (syphillies, etc)
11. Eye infection
12. Other (specify)____
13. Physical check up (prevention)
14. Immunizations (prevention)
15. Family planning (prevention)
16. Prenatal/Antenatal care
17. Dental
18. Circumcision
19. VCT
20. Other forms of counselling
21. Physiotherapy
22. Other services (specify)_____

First Visit ☐☐ *Second Visit* ☐☐ *Third Visit* ☐☐ *Fourth Visit* ☐☐ *Fifth Visit* ☐☐ *Sixth Visit* ☐☐

H12. Who decided for [NAME] to consult during first visit?

1. Self
2. Parents
3. Grand parents
4. Spouse
5. Children
6. Other Relatives
7. Friends
8. Neighbours
9. Other (specify) _____

☐

After replying to question H12 >> BLOCK 1.4, if woman aged 15-49 years otherwise >> BLOCK 1.5

H13 Why didn't [NAME] consult any one? (multilpe answers possible)

a. No need
b. No time
c. No money
d. No transport/ too far ☐
e. Doesn't trust ☐
f. Other (specity)____ ☐

BLOCK 1.4 - FERTILITY (WOMEN AGED 15-49 YEARS)
(All questions refer only to live births)

F1.	Has [NAME] ever given birth? 1. Yes 2. No (>> BLOCK 1.5) ☐
F2.	How old was [NAME] when she gave birth to first child? ☐☐ years
F3.	How many children did [NAME] give birth? 1. Male ☐☐ 2. Female ☐☐
F4	How many of them are living? 1. Male ☐☐ 2. Female ☐☐
F5	Has [NAME] given birth in the last 12 months? (including non-surviving) 1. Yes 2. No (>> BLOCK 1.5) ☐
F6	How many children did [NAME] give birth in the last 12 months? 1. Male ☐ 2. Female ☐
F7	During her pregnancy, did [NAME] receive pre-natal care from a doctor or qualified nurse? 1. Yes 2. No ☐
F8	Where did [NAME] give birth? ☐ 1. Hospital / Polyclinic / Maternity 2. At home, with medical assistance 3. At home, with midwife 4. At home, without specialized assistance 5. Other (specify) _____
F9	Within 42 days of birth, did [NAME] receive any post-natal care from a doctor or a qualified nurse? 1. Yes 2. No ☐
F10	How much did you spend for the deliveries in the last 12 months? *Hospital Charges (consultation fees, cabin)* ☐☐☐☐☐ *Purchase of medicines and health accessories* ☐☐☐☐☐ *Transportation (in-country)* ☐☐☐☐☐ *Transportation (ex-country)* ☐☐☐☐☐ *Rimdo/puja* ☐☐☐☐☐ *Traditional practitioner (Pow/pam, shaman, Tsip, Terda)* ☐☐☐☐☐ *Other health expenditure* _____ ☐☐☐☐☐

BLOCK 1.5 - EMPLOYMENT (IF AGE BELOW 15, >> NEXT MEMBER)

E1.	Did [NAME] do any farming, fishing, hunting, or gathering of fruits, etc. atleast one hour in the last 7 days? : 1. Yes 2. No ☐
E2.	Did [NAME] work for money for atleast one hour in the last 7 days or have profitable business? 1. Yes 2. No ☐
E3.	Did [NAME] do any unpaid work in friends or relatives' enterprise or farm for atleast one hour in the last 7 days? 1. Yes 2. No ☐
	If there is an answer "YES" to any of the questions E1 to E3 , >> to question E6
E4.	Did [NAME] actively look for a job or try to start a new business during the last 7 days? 1. Yes (>> BLOCK 2) 2. No ☐
E5.	Why didn't [NAME] look for a job or try to start his own business in the last 7 days? 1. Believed no work available 2. Temporary illness 3. Off season 4. No approrpiate work available 5. Waiting for result 6. Waiting previous work recall 7. House/family duties 8. Studying 9. Too young /old or retired 10. Permanent disabled 11. Other (specify) _____ ☐☐ After replying to question E5, >> BLOCK 2
E6.	What is [NAME]'s status in his/her main occupation? 1. Regular paid employee 2. Casual paid employee 3. Unpaid family worker 4. Own account worker 5. Employer 6. Other (specify) _____ ☐
E7.	What is [NAME]'s main occupation? (Describe precisely; coding by NSB) ..... ☐☐☐☐
E8.	Specify [NAME]'s place of work. (Eg. Internet café, Private Nursery School, Own house, Department of Trade, etc.)(Describe precisely; coding by NSB) ..... ☐☐☐☐

HS35.	How much did your household spend (Nu.) for:	
	... sand ?	☐☐☐☐☐
	... stone/blocks ?	☐☐☐☐☐
	... cement ?	☐☐☐☐☐
	... rod (iron, etc) ?	☐☐☐☐☐
	... wood materials ?	☐☐☐☐☐
	... labour charge ?	☐☐☐☐☐
	... Others ?	☐☐☐☐☐
HS36.	How much did you spend on house maintenance, improvement and repairs (materials and associated labour wages) in the past 12 months (Nu.)?	☐☐☐☐☐☐
HS37.	Ask in urban areas only: Is there a kitchen garden?	
	1. Yes 2. No	☐

BLOCK 3 - ASSETS OWNERSHIP

AS1. Does your household own the following items? (Consider only items which are in working condition and if the household owns the item more than one, consider the latest)

1. Yes, acquired in the last 12 months
2. Yes, acquired more than a year ago
3. No

Sofa Set	☐	*Bukhari*	☐	*Motor-bike, scooter*	☐
Heater	☐	*Rice cooker*	☐	*Seshu Gjo/Kira*	☐
Fan	☐	*Curry cooker*	☐	*Family Car*	☐
Computer/ laptop	☐	*Refrigera-tor*	☐	*Other vehicle*	☐
Fixed tele-phone (other than mobiles)	☐	*Modern stove*	☐	*Washing machine*	☐
Choesham	☐	*Water boiler*	☐	*Sewing machine*	☐
Camera	☐	*Micro-wave oven*	☐	*Televi-sion*	☐
Foreign Bow	☐	*Bicycle*	☐	*VCR/ VCD/ DVD*	☐
Radio	☐	*Tractor*	☐	*Grinding machine*	☐
Electric iron	☐	*Power-tiller*	☐	*Wrist watch*	☐
Power chain	☐	*Jewelry*	☐	*Weaving tool*	☐

AS2. Livestock and Poultry
(Indicate number of head. Write 000 if none)

Pigs	☐☐☐	Horses	☐☐☐
Cattle	☐☐☐	Sheep	☐☐☐
Yaks	☐☐☐	Goats	☐☐☐
Buffaloes	☐☐☐	Poultry	☐☐☐☐

AS3. Land
(Write 0 if none)

(local measurement, eg: 2langdo)

Wet land	Total owned	☐☐☐ ☐☐	Acres	
	Own operated	☐☐☐ ☐☐	Acres	
	Leased out	☐☐☐ ☐☐	Acres	
	Leased in	☐☐☐ ☐☐	Acres	
Dry land	Total owned	☐☐☐ ☐☐	Acres	
	Own operated	☐☐☐ ☐☐	Acres	
	Leased out	☐☐☐ ☐☐	Acres	
	Leased in	☐☐☐ ☐☐	Acres	
Orchards		☐☐☐ ☐☐	Acres	

BLOCK 4 - ACCESS AND DISTANCE TO SERVICES

SR1. How do you usually go to the [SERVICE]?

1. Foot
2. Bicycle
3. Motorcycle
4. Bus
5. Car
6. Foot+vehicle
7. Other
8. Not Applicable (>> next)

SR2. How long does it take to get to the nearest [SERVICE]? (hours/minutes)

01 - Post office	☐	☐☐ h	☐☐ min
02 - Nearest phone (if at home, skip)	☐	☐☐ h	☐☐ min
03 - Police station	☐	☐☐ h	☐☐ min
04 - Hospital / BHU /ORC	☐	☐☐ h	☐☐ min
05 - Drugstore, pharmacy	☐	☐☐ h	☐☐ min
06 - Dzongkhag headquarters	☐	☐☐ h	☐☐ min
07 - Gewog headquarters	☐	☐☐ h	☐☐ min

VITA

Name: Pema Dechen

Date of Birth: 09th October 1986

Place of Birth: Thimphu, Bhutan

Citizen: Bhutanese

Sex: Female

E-mail: pemadechen09@gmail.com

Education

High School: Punakha Higher Secondary School

Punakha

Bhutan

Class: 9-12

Stream: Commerce

Year of Completion: 2004

Degree: BB Pradhan Management College

Sikkim-Manipal University of Heath, Medical & Technological Sciences, India

Year of Study: August, 2005 - August, 2008 (3 Years)

Job Status

Current Position: Asst. ICT Officer

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Ministry of Home & Cultural Affairs

Thimphu: Bhutan

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