FACTORS RELATED TO THE UTILIZATION OF ANTENATAL CARE SERVICES AMONG PREGNANT WOMEN AT HEALTH CENTERS IN ACEH BESAR DISTRICT, NANGGROE ACEH DARUSSALAM PROVINCE, INDONESIA

ERLINDAWATI

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF PRIMARY HEALTH CARE MANAGEMENT

FACULTY OF GRADUATE STUDIES

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Thesis
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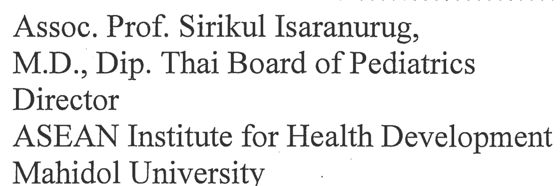

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ABSTRACT

A cross-sectional study was conducted at five health centers in Aceh Besar District, Nanggroe Aceh Darussalam Province, Indonesia in order to identify the association between the predisposing characteristics (maternal age, education of respondents and husbands', occupation of respondents and husbands', family income and knowledge), enabling resources (accessibility and availability, waiting time, information acquired and satisfaction) and need factors (parity, type of last delivery, complication during previous and current pregnancy, intention of pregnancy and husband's concern) with the utilization of antenatal care services.

Using a structured questionnaire, the data was derived from 160 pregnant women in the third trimester who utilized the antenatal care services at five health centers: Ingin Jaya, Indrapuri, Darul Imarah, Montasik and Suka Makmur. Descriptive statistics were used to describe the utilization of antenatal care services and dependent variables, while the relationship between these factors and utilization of antenatal care services was determined by Chi-square test. Multiple logistic regression was performed to determine predictive factors for antenatal care utilization.

The antenatal care utilization of pregnant women was measured by the visits based on guideline of the Ministry of Health of Republic Indonesia. Logistic regression showed that the information acquired, intention of pregnancy, satisfaction of antenatal care services, occupation and education of respondents were significant predictors for antenatal care utilization. After adjusting other factors, pregnant women who acquired less information from health care providers were nearly 7.5 times more likely to inadequately utilize antenatal care services compared to those who acquired enough information.

Health Promotion and prevention should be taken into consideration to create an awareness of pregnancy risk. Interpersonal communication and counseling training should be provided for midwives as they are the main health providers and implementers of the mother and child health program. Health providers should implement the standard operational procedure as per the guidelines of antenatal care services in order to ascertain key performance indicators to improve the quality of service.

KEY WORDS: UTILIZATION/ ANTENATAL CARE SERVICES/ HEALTH CENTERS

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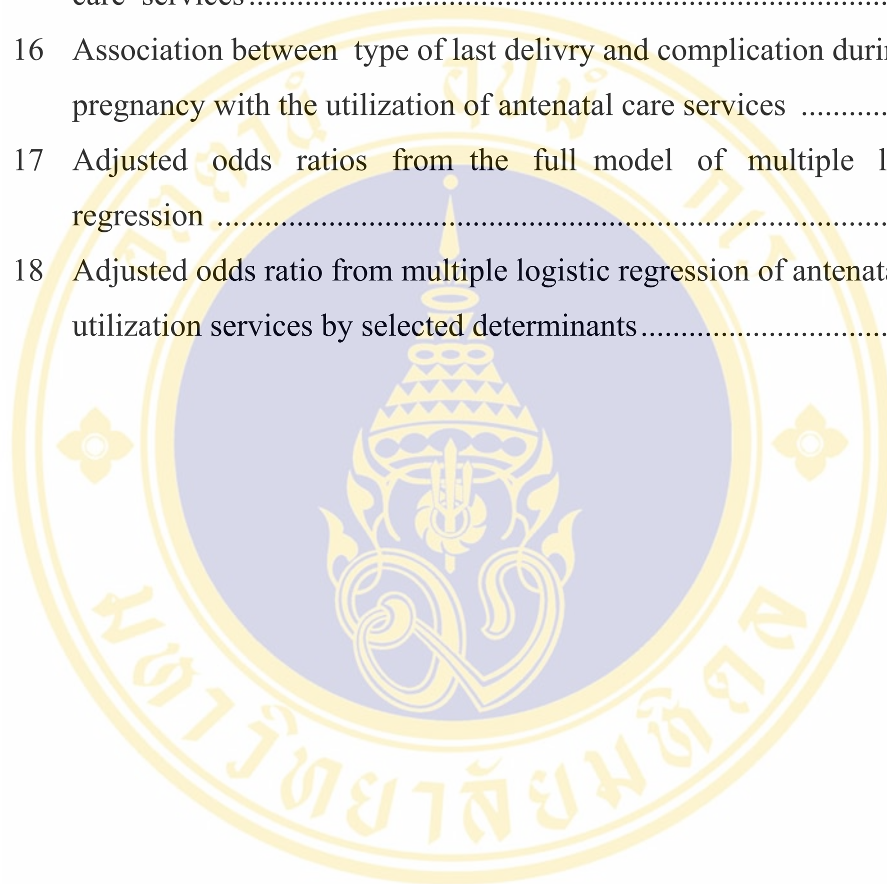

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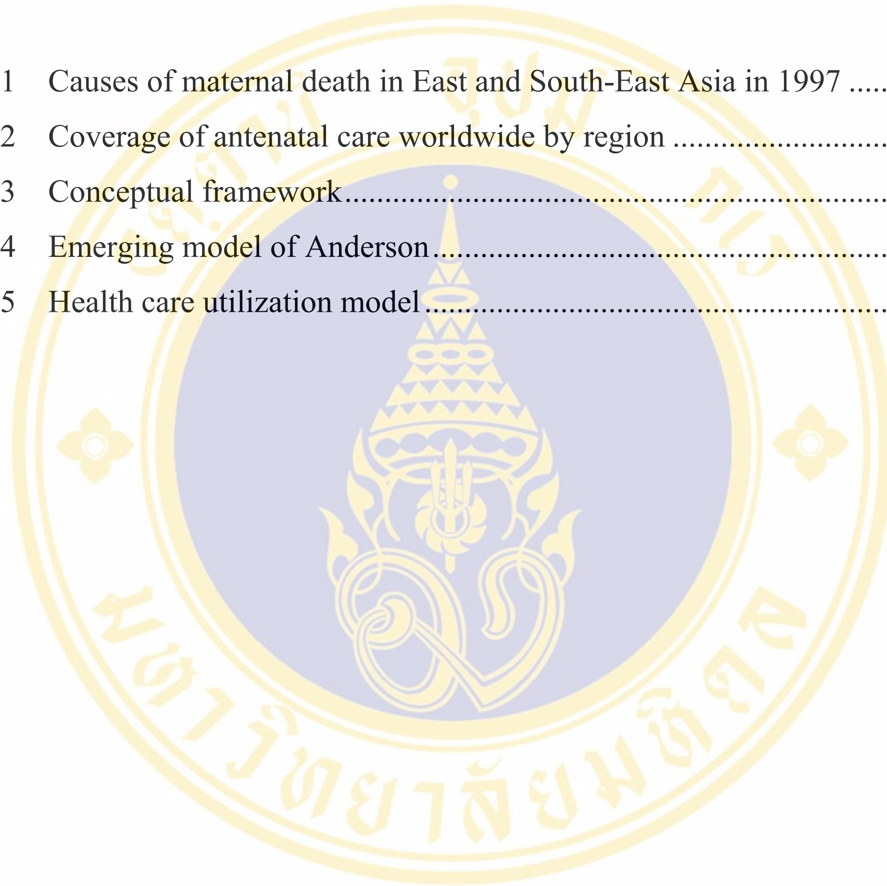

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LIST OF ABBREVIATIONS

WHO	:	World Health Organization
ESEA	:	East and South-East Asia
UNFPA	:	United Nations Population Fund
UNICEF	:	The United Nations Children's Fund
NAD	:	Nanggroe Aceh Darussalam
ANC	:	Antenatal Care
MMR	:	Maternal Mortality Rate
IMR	:	Infant Mortality Rate
MoH	:	Ministry of Health

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CHAPTER 1
INTRODUCTION

1.1 Rationale and Justification

Maternal and child death are relatively rare in developed countries, but they remain a common event in the developing world. Maternal mortality is the health indicator which shows the greatest difference between developed and developing countries (1). Several international conferences, most recently the Millennium Summit in 2000, have included the goal of reducing maternal mortality (2).

The World Health Organization (WHO) has estimated the total of 536,000 maternal deaths worldwide in 2005, developing countries accounted for 99% (533,000) of these deaths. Slightly more than half of the maternal deaths (270,000) occurred in the sub-Saharan Africa region alone, followed by South Asia (188,000). Thus, sub-Saharan Africa and South Asia accounted for 86% of global maternal deaths. The lifetime risk of death as a result of pregnancy or childbirth is estimated at one in twenty-three for women in Africa, compared to about one in 10,000 for women in North Europe. Sierra Leone has the highest maternal death rate at 2,000 and Afghanistan has the second highest maternal death rate at 1900 maternal deaths per 100,000 live births, reported by the United Nations based on 2000 figures. Lowest rates included Iceland at 10 per 100,000 and Austria at 4 per 100,000. In the United States, the maternal death rate was 17 maternal deaths per 100,000 live births 2000. The WHO produced a report that the world average was 400, the average for developed regions were 20 and for developing regions 440 in 2003. The major causes of maternal deaths were severe bleeding/hemorrhage (25%), infections (13%), eclampsia (12%) and obstructed labor (8%), complications of abortion (13%), other direct causes (8%), and indirect causes (20%) (3).

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Increasing attention has been concentrated on reducing maternal and neonatal mortality, acknowledging the tragedy of not preventing these avoidable deaths, which include 36,000 women annually in the 12 countries in the region of East and South-East Asia (ESEA). Many of the 647,000 neonatal deaths annually in the region are also avoidable. Every year there were approximately 36,000 maternal deaths in the 12 countries in the region of East and South-East Asia (ESEA). Four countries (Cambodia, Lao PDR, Myanmar, and Timor-Leste) have high level of maternal mortality, with over 300 deaths per 100,000 live births. Table 1 appended as under shows maternal health indicator for East and South-East Asia (4).

Table 1 Maternal health indicators for East and South-East Asia in 2005

Country	MMR (per 100,000) live births)	Range of MMR estimate	Lifetime risk of maternal death (1 in)	Number of maternal death	Deliveries with skilled birth attendants (%)
Lao PDR	650	160–1 200	25	1300	19
Timor-Leste	600	170-1200	30	140	24
Cambodia	450	260-620	36	2100	32
Myanmar	360	91-660	75	4300	56
Indonesia	230	58-440	150	10000	68
Philippines	200	120-280	120	4100	60
Vietnam	130	32-240	270	2000	85
Mongolia	110	75-150	300	65	99
DPRK	67	17-130	590	260	97
China	56	28-110	830	11000	97
Thailand	44	22-88	900	520	99
Malaysia	41	20-81	660	220	97

Sources: WHO 2004 and UNFPA 2005

Maternal mortality is undoubtedly an important public health problem in developing countries and used as a measurement of the quality of a health care system. It is possible to identify the precursors, early signs or risk factors at least

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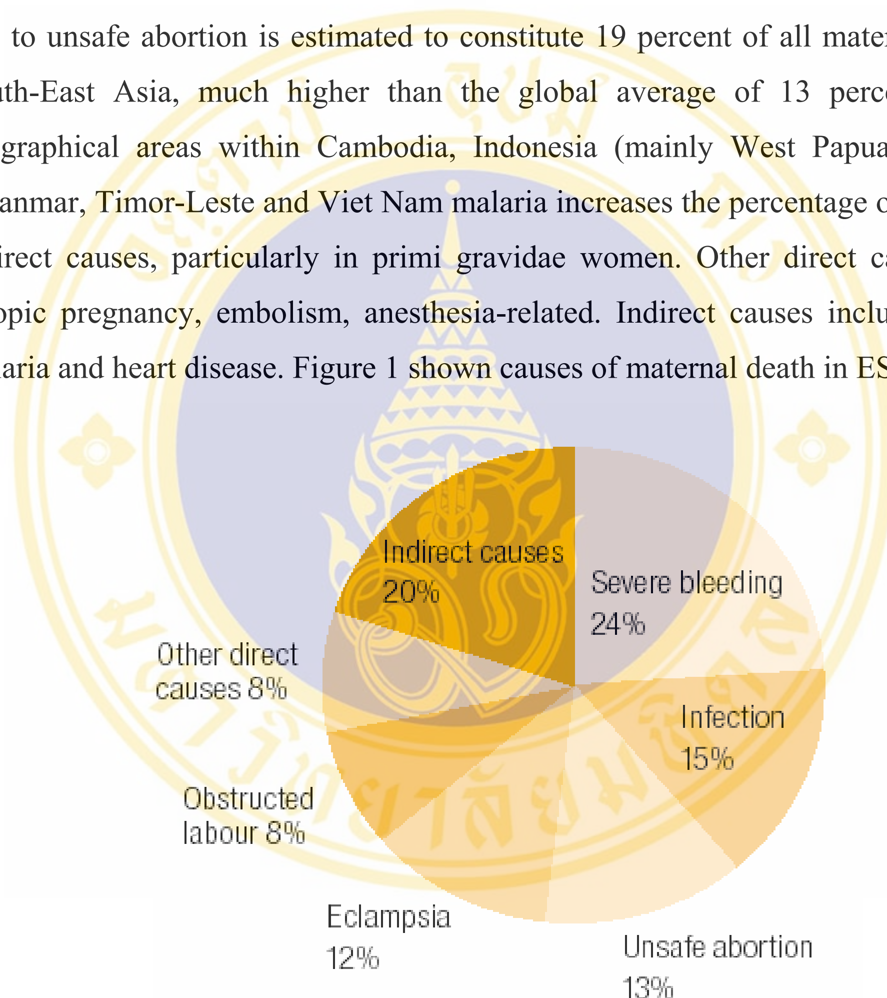
some of the major pathogenic causes of maternal mortalities. (1) The data available in the ESEA region shows that the patterns of causes for maternal death are similar to the global picture, with the exception of the deaths from unsafe abortion. The proportion of deaths due to unsafe abortion is low to non-existent in Eastern Asia including China, DPRK and Mongolia where abortion is legal. However, mortality due to unsafe abortion is estimated to constitute 19 percent of all maternal deaths in South-East Asia, much higher than the global average of 13 percent. In some geographical areas within Cambodia, Indonesia (mainly West Papua), Lao PDR, Myanmar, Timor-Leste and Viet Nam malaria increases the percentage of deaths from indirect causes, particularly in primi gravidae women. Other direct causes include ectopic pregnancy, embolism, anesthesia-related. Indirect causes including anemia, malaria and heart disease. Figure 1 shown causes of maternal death in ESEA (4).



Source: WHO 1997.

Figure 1 Causes of maternal death in East and South-East Asia in 1997

WHO also has summarized three major factors underlying the direct causes of maternal deaths operate at several levels. Firstly, lack of access and utilization of essential obstetric service is crucial factor contributing to maternal deaths. Secondly, the low socio economic status of girls and women is fundamental determinant of maternal mortality in some developing countries. Thirdly, excessive physical work

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together with improper diet also contributes to poor maternal health, obstetric problems and maternal outcome (5).

Antenatal care is an essential reproductive health care service that helps ensure women to have healthy pregnancies. Specifically, prenatal care allows for monitoring of pregnancy complications, such as low fetal birth weight can lead to infant mortality and disabilities. The rationale for antenatal is essentially that of screening a predominantly health population to detect early signs of risk factor for disease following by timely intervention. Antenatal care was an efficient preventive strategy for decreasing unfavorable pregnancy outcome incidence.

Antenatal care might theoretically reduce maternal morbidity and mortality directly through detection and treatment of pregnancy related illness, or indirectly through detection of women at increased risk of complications of delivery and ensuring that they deliver in suitably equipped facility. Most formal investigation of the effectiveness of antenatal care program whether in developed or developing countries, have concentrated on the effect of care on infant outcomes, perinatal mortality, preterm delivery and low birth weight (1).

Data for the late 1990s and for 2000-2001 show that just over 70% of women worldwide have at least one antenatal visit with a skilled provider during pregnancy. In the industrialized countries coverage is extremely high, with 98% of women having at least one visit. In the developing world, antenatal care use is around 68% (data are not available for China), but this indicates considerable success for programs aimed at making antenatal care available. The region of the world with the lowest levels of use is South Asia, where only 54% of pregnant women have at least one antenatal care visit. In sub-Saharan Africa, generally the region with the lowest levels of health care use, fully 68% of women report at least one antenatal visit. The levels in the remaining regions of the world range from 82% to 86%. In developing countries, two out of three women receive some antenatal care, but in South Asia the rate is barely half (6).

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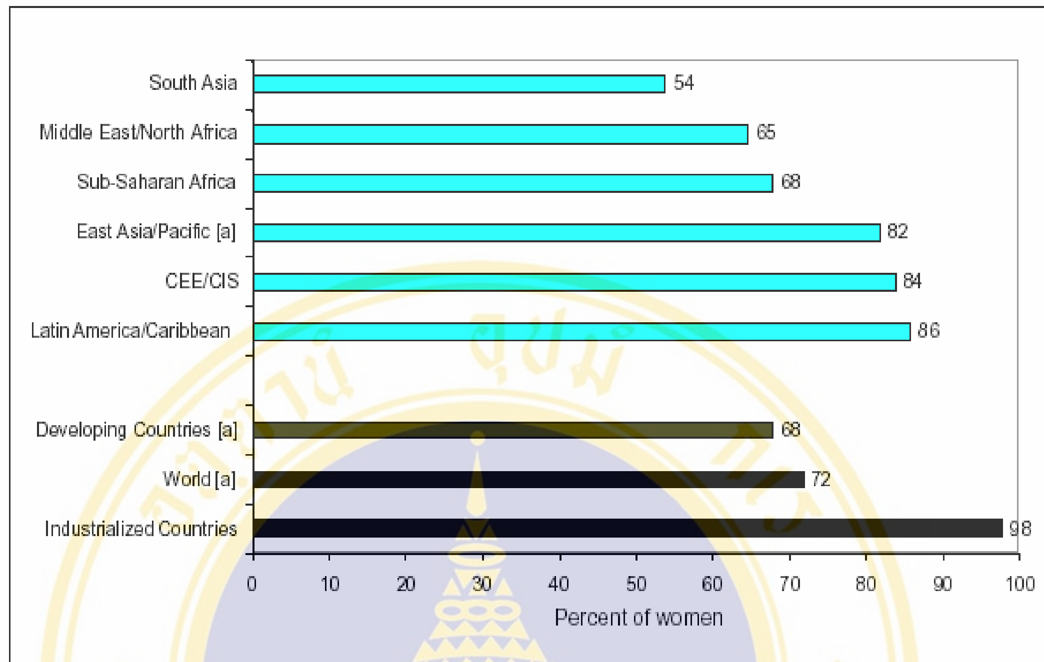

Source: UNICEF/WHO 2002 (Data from Demographic and Health Surveys (DHS), Multiple Indicator Cluster Surveys (MICS) and other national surveys, late 1990s to 2001. 104 countries)

Figure 2 Coverage of antenatal care worldwide by region

The data drawn explains that efforts to extend the reach of antenatal care have been largely successful. Only in a few countries do levels of antenatal care use fall below 50% of pregnant women. In recognition of the potential of care during the antenatal period to improve a range of health outcomes for women and children, the World Summit for Children in 1990 adopted antenatal care as a specific goal, namely "Access by all pregnant women to prenatal care, trained attendants during childbirth and referral facilities for high-risk pregnancies and obstetric emergencies" (6).

Based on the fact, the researcher desired to conduct research study to identify factors related to the utilization of antenatal care services among the pregnant women at health centers in Aceh Besar Districts, under the Nanggroe Aceh Darussalam Province in Indonesia.

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1.2 Research Questions

1.2.1 What is the situation of antenatal care utilization among pregnant women at health centers in Aceh Besar District, Nanggroe Aceh Darussalam Province, Indonesia?

1.2.2 What are factors related to the utilization of antenatal care services among pregnant women at health centers in Aceh Besar District, Nanggroe Aceh Darussalam Province, Indonesia?

1.3 Research Objectives

1.3.1 General Objective :

This study aims to identify the utilization of antenatal care services and its related factors among pregnant women in Aceh Besar District, Nanggroe Aceh Darussalam Province, Indonesia.

1.3.2 Specific Objectives :

1.3.2.1 To assess antenatal care services utilization at health centers among pregnant women in Aceh Besar District, Nanggroe Aceh Darussalam Province, Indonesia.

1.3.2.2 To describe predisposing characteristics of pregnant women (maternal age, education, occupation, family income and knowledge on antenatal care) who utilize ANC services at health centers in Aceh Besar District, Nanggroe Aceh Darussalam Province, Indonesia.

1.3.2.3 To describe enabling resources of pregnant women (accessibility and availability, waiting time, information and satisfaction of antenatal care services) who utilize ANC services at health centers in Aceh Besar District, Nanggroe Aceh Darussalam Province, Indonesia.

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1.3.2.4 To describe need factors of pregnant women (parity, type of last delivery, complication during current and previous pregnancy, intention of pregnancy and husbands' concern about pregnancy) who utilize ANC services at health centers in Aceh Besar District, Nanggroe Aceh Darussalam Province, Indonesia.

1.3.2.5 To determine the relationship between utilization of antenatal care services at health centers and the following factors:

- Predisposing factors (maternal age, education of respondents and husbands', occupation of respondents and husbands', family income, and knowledge on antenatal care).
- Enabling factors (accessibility and availability of services, waiting time, information acquired of antenatal care and satisfaction of antenatal care services).
- Need factors (parity, type of last delivery, complication during current and previous pregnancy, intention of pregnancy, and husband's concern about pregnancy).

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1.4 Conceptual Framework

The conceptual framework of this study is developed based on the guidelines of the health care utilization model (Anderson & Newman, 1973) mainly following Waller et al, 1997 as shown in Figure 3 (7).

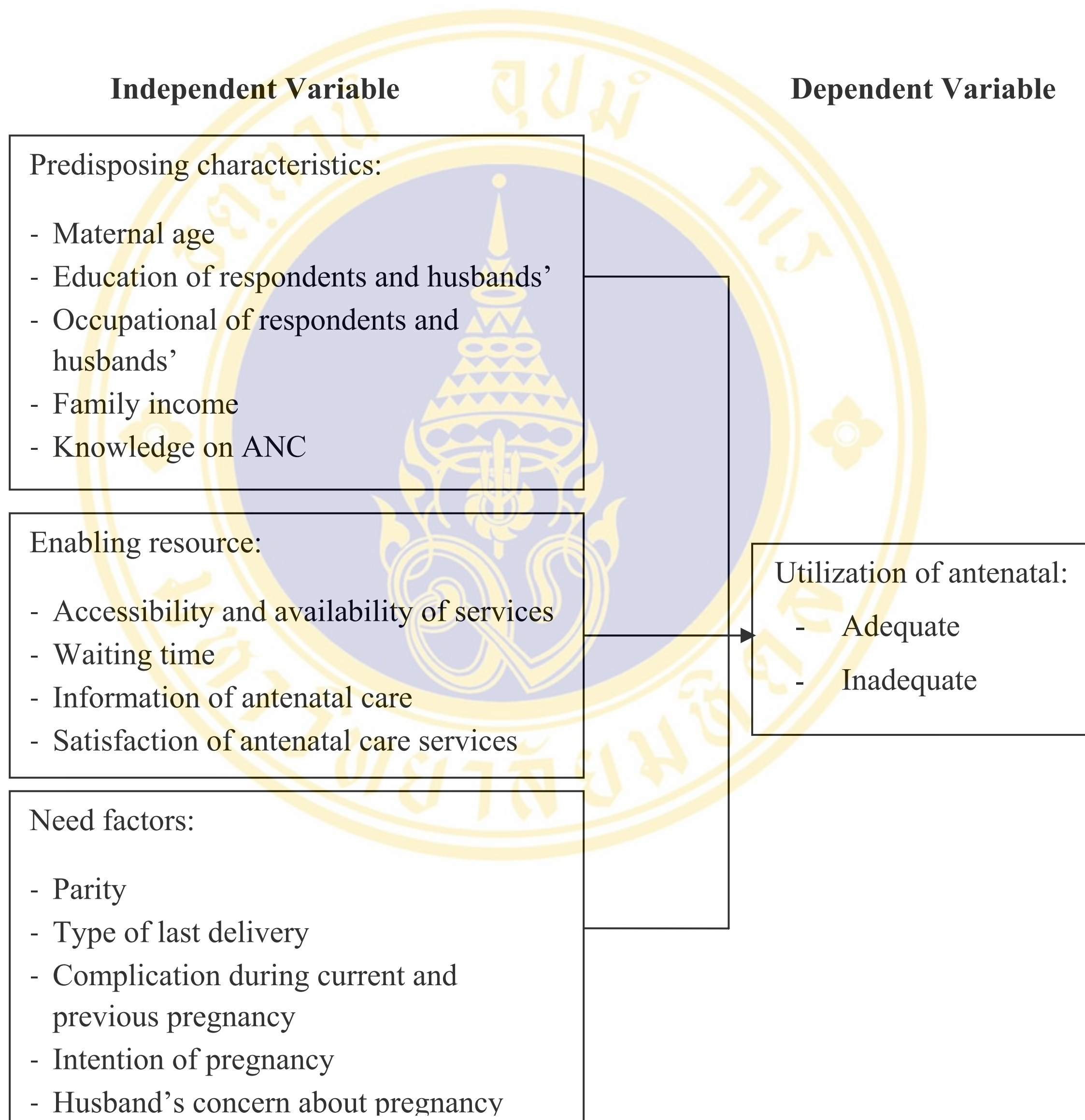

Figure 3 Conceptual Framework

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1.5 Variables and Operational Definition

1.5.1 Utilization of antenatal care services means adequacy of ANC services obtained by pregnant women during pregnancy at least 4 times or more than 4 times following the guidelines. The pregnant women should come to ANC service one time at 1st trimester, one time at 2nd trimester, and two times at 3rd trimester during the pregnancy. In this study, adequate utilization means availing of ANC services by the pregnant women at one time at first trimester and one time at second trimester as per the guideline. Inadequate utilization means availing of ANC services by the pregnant women not based on guidelines. Measurement of the antenatal care utilization is in terms of visit by the pregnant women for ANC services.

1.5.2 Maternal age was determined as the age of reproductive age women at the time of the interview. Maternal age was grouped in to three categories:

- Less than 20 years
- 20 to 35 years
- Above 35 years

1.5.3 Education refers to the highest education level for which respondents and husbands' have passed an examination or successfully completed the course requirements. It is thus defined as follows:

- No education/illiterate
- Primary school starting from grade 1 to grade 6
- Secondary school starting from grade 7 to grade 9
- High school starting from grade 10 to grade 12
- Academy
- University

1.5.4 Occupation refers to the present job of the married women and their husbands at the time of interview, categorized: housewife/ no job, farmer, business, government employee and other.

1.5.5 Family income refers to the average income per month.

1.5.6 Knowledge on ANC means the understanding that pregnant mother have gained through learning or experiences focus on the concepts and contents of antenatal care.

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This part includes 12 questions with a maximum score of 12. Correct answer is given a score of 1 and 0 for incorrect answer or do not know. In descriptive analysis, knowledge was divided into three levels. They are high, moderate and low knowledge by using Bloom's cut off points which the cut-off points was determined as follows (8):

- Good : > 80% of total score
- Moderate : 60 – 80 % of total score
- Poor : < 60 of total score

1.5.7 Accessibility and availability was defined as the actual and perceived idea obtained from individual respondent in terms of location of health centre, traveling distance and transportation to the antenatal care services. This part includes 5 questions with a maximum score of 5. "Yes" answer is given a score of 1 and 0 for "No" answer. In descriptive analysis, accessibility is divided into two levels. They are easy and difficult access to antenatal care services by using percentile as cut of point which determined as follows:

- Easy access : ≥ third quartile
- Difficult access : < third quartile

1.5.8 Waiting time refers to time spend at registration, examination, treatment and taking drug at the health centre. This part includes 3 questions with maximum score of 3. "Yes" answer is given a score of 1 and 0 for "No" answer. In descriptive analysis, accessibility is divided into two levels. They are long time and short time to wait the antenatal care services by using percentile score as cut of point which determined as follows:

- Short time : ≥ third quartile
- Long time : < third quartile

1.5.9 Information of antenatal care means enough information acquirement about antenatal care services, taking drug, health promotion and disease prevention through various media, health personnel, traditional birth attendance, village health volunteers, family members or friends during pregnancy. This part includes 11 questions with maximum score of 11. Answers "yes" is given a score of 1 and 0 for answer "No". In descriptive analysis, information was divided into three levels. They

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are enough, fair and less information acquired by using percentile as cut of point which determined as follows:

- Enough : ≥ third quartile.
- Fair : first quartile - third quartile
- Less : < first quartile.

1.5.10 Satisfaction of antenatal care service applies to pregnant women that receive antenatal care service, in terms of organization and service providers. Good quality of service qualifies health care providers as having adequate clinical skill and as being sensitive to women's needs; that the facilities have necessary equipment, adequate supplies and a referral system to ensure that women with complications get essential treatment. This part includes 9 questions with maximum total score of 45. Pregnant women were asked to rate their contentment level toward antenatal care services. There are five scales satisfaction of antenatal care services as Likert rating scale were applied as follows:

5 = Very satisfied

4 = Satisfied

3 = Neutral

2 = Dissatisfied

1 = Very dissatisfied

The satisfaction of antenatal care services was classified into three levels by using percentile as cut of point:

- High satisfaction (> third quartile)
- Moderate satisfaction (first quartile – third quartile)
- Poor satisfaction (< first quartile)

1.5.11 Parity means the number of times a woman has given birth; classified as nulliparous, primiparous, multiparous and grand multiparous. Nulliparous refers to a woman who has never given birth, primiparous means woman who has given birth one times, multiparous refers to woman who has given birth two or more times and grand multiparous means more than five times given birth.

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1.5.12 Type of last delivery refers to the experience of last delivery and applies to primiparous, multiparous and grandparous as classified by normal delivery and caesarean section.

1.5.13 Complication during pregnancy refers to mothers who encountered the following circumstances during current and previous of pregnancies e.g. ante-partum hemorrhage, pre-eclampsia and infection as classified by yes and no.

1.5.14 Intention of pregnancy refers to desire of pregnant women to continue the pregnancy as classified by wanted, unclear and unwanted.

1.5.15 Husbands' concern about pregnancy refers to attention of husband on the pregnancy of his spouse as determined by yes and no.

1.6 Limitation of study

This study is conducted with limited resources making it impossible to include many important questions and variables. Since the study was conducted at health centers, the results may be distorted by information bias. However, utilization of antenatal care in this study only looked at the pregnant women in the third trimester of pregnancy who visit the health centers. Since duration of pregnancy below 32 weeks, complication during current pregnancy might be rare identified.

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CHAPTER 2
LITERATURE REVIEW

2.1 Antenatal Care

2.1.1 Meaning and Contents of Antenatal Care

Antenatal care or ANC (also known as prenatal care) is the complex health service aimed at the protection of the expectant mother, the promotion of the healthy development of the fetus and the birth of the child, as well as the prevention and timely recognition of risks and complications are involved in antenatal care: the gynecologist specialist, the general practitioner, and the health visitor. The purpose of antenatal care is to prevent or identify and treat conditions that may threaten the health of the fetus or newborn and or the mother and to help a woman approach pregnancy and birth as positive experiences (9).

Antenatal care is designed to detect and manage problems during pregnancy and improve the chances of having a healthy baby by providing information and counseling or how to stay in good health. Antenatal care reduces maternal and perinatal morbidity and mortality directly through the detection and treatment of pregnancy related or underlying illness or indirectly through the detection of woman at increased risk of delivery complications by ensuring that they are cared for in a suitably equipped facility. The basic content of care at each visit has not changed substantially over the years, although modern technology has led to introduction of several new elements in pregnancy surveillance (10).

Historically antenatal care began as social service in Paris in 1788 at two shelter homes for abandoned women. In England, the service started in 1919 with midwifery service, home service and home visiting by nurse. These services became popular in 1944. England and Wales Local Authority Clinic provided antenatal care for 77% of the total registered birth and 96.8% receive an early home visit by a health

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visitor. World health organization put maternal and child health care was one of four priorities of health care in 1948 (11).

Major recent policy trends in maternal health since 1987 by Safe Motherhood Initiative in Nairobi, International Conference on Population and Development (ICPD) in 1994 in Cairo, Investing in Health (World Bank) includes maternal health as ‘‘Best buy’’ in 1994, Sri Lanka meeting: lessons learned in safe motherhood in 1997, Millennium Summit in New York in 2000, WHO Making Pregnancy Safer initiative in 2002, World Health Assembly endorses WHO’s first reproductive health policy in 2004 and Partnership for Maternal, Newborn and Child Health in 2005 (4).

Most antenatal care programs in developing countries were established along the lines of those used in developed countries, with little adjustment for local conditions. In recent years, the underlying premises of much that is carried out under the heading of antenatal care have rarely been subjected to rigorous scientific evaluation to determine their effectiveness. Many elements of antenatal care, such as routine monitoring of height and weight gain, have not been shown to have any impact in reducing the risk of serious complications and maternal deaths. The risk approach adopted as a way of identifying which women are most likely to develop serious complications. Other antenatal interventions, such as detection and treatment of anemia and management of sexually transmitted infections (STIs), offer improvements in health without necessarily any equivalent reduction in the risk of maternal death. It has therefore become clear that antenatal care interventions, in themselves, cannot be expected to have significant impact on maternal mortality. There is now broad agreement that the focus of antenatal care interventions should be on improving maternal health, this being both an end in itself and necessary for improving the health and survival of infants (12).

Maternal mortality in Indonesia is high compared than most South-East Asian and even higher than the average of developing countries. The Indonesia survey shows that more than 80% of maternal mortality can be attributed to the classic trias: bleeding (40-60%), birth canal infection (20-30%), and gestosis (20-30%). Generally,

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classic trias can be improved upon by adhering to three admonitions: do not be late in deciding to refer to the nearest health facilities, do not be late to reach the health centre or hospital and if the patient has arrived at the hospital, do not be late in supplying appropriate management. Other causes were socio cultural and economic aspects, services, health facilities or clinical management. The inadequacy of health service coverage among others was caused by geographic conditions, population distribution, inadequate health facilities, and the quantity and quality of health personnel. On the other hand, because of geographic obstacles, distances between a health centre and the hospital can hardly be bridged within 2 hours. In addition, sanitation, facilities, equipment and clean water are inadequate, and if a referral is wanted, transportation and assistance will be necessary during travel (13).

Antenatal care is comprehensive medical care provided during pregnancy, labor and delivery and postpartum. This care can be provided by a doctor, midwife or other health care professional. Services include screening for medical and behavioral high risk factors known to cause poor outcomes and treatment for those conditions. The goal of antenatal care is to monitor the progress of a pregnancy. The aims of antenatal care are to prevent, identify and to ameliorate maternal or fetal abnormalities that can adversely affect pregnancy outcome. Antenatal care also provides an opportunity to educate the woman about pregnancy, labor, delivery, and infant care so that she can successfully adapt to the pregnancy and the challenges of raising a family. During antenatal visits, the health care provider teaches women about pregnancy, monitors medical conditions she may have, check for problems with the baby and refers the women to services for prompt intervention. Besides health service providers, support group of women, infants and children program or childbirth education classes are such other kind (10).

Early entry to antenatal care (ANC) is important for early detection and treatment of adverse pregnancy related outcomes. Women are advised to attend ANC early and even earlier than previously recommended. (14) Early and continuous prenatal care is an important way to improve the long-term health of mothers and to prevent adverse birth outcomes. Utilization of health care during the prenatal period is

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the best indicator; however, first trimester entry into prenatal care is the measure most frequently available (15).

The antenatal period presents important opportunities for reaching pregnant women with a number of interventions that may be vital to their health and well-being and that of their infants. Better understanding of fetal growth and development and its relationship to the mother's health has resulted in increased attention to the potential of antenatal care as an intervention to improve both maternal and newborn health (6).

WHO developed a focused antenatal care package that includes counseling, examinations and tests that serve immediate purposes and have proven health benefits. For normal pregnancy, WHO recommends four antenatal visits. The major goal of focused antenatal care is to help women maintain normal pregnancy through:

- Identification of pre existing health condition
- Early detection of complications arising during the pregnancy
- Health promotion and disease prevention
- Birth preparedness and complication readiness planning (16).

The principles outlined apply to all aspects of the antenatal care guideline:

1. Pregnant women should be offered opportunities to attend antenatal classes and have written information about antenatal care.
2. Pregnant women should be offered evidence-based information and support to enable them to make informed decisions regarding their care. Information should include details of where they will be seen and who will undertake their care. Addressing women's choices should be recognized as being integral to the decision-making process.
3. At the first contact, pregnant women should be offered information about: the pregnancy care services and options available; lifestyle considerations, including dietary information; and screening tests.
4. Pregnant women should be informed about the purpose of any screening test before it is performed. The right of a woman to accept or decline a test should be made clear.

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5. At each antenatal appointment, midwives and doctors should offer consistent information and clear explanations, and should provide pregnant women with an opportunity to discuss issues and ask questions.
6. Communication and information should be provided in a form that is accessible to pregnant women who have additional needs, such as those with physical, cognitive, or sensory disabilities and those who do not speak or read English (12).

To improve pregnancy outcomes, it is important to assess the adequacy of prenatal care services. Timely initiation and amount of services are the most commonly used measures of prenatal care. However, quantity of visits is not a reliable indicator for the quality of prenatal care and fewer routine visits of low risk women do not necessarily put pregnancies at increased risk. The key factor of healthy outcomes in those women is the content of services. Guidelines regarding the content of antenatal care are often inconsistent across countries (17). Therefore, the researcher used the prenatal monitoring recommendations by the Ministry of Health of Republic Indonesia in order to assess the quality of services. Accordingly, the criteria for content adequacy were at least seven as follows:

- Maternal weight gain and height
- Measurements blood pressure
- Fetal heartbeat measurement
- Tetanus immunization
- Iron and folic supplementary
- Blood and urine tested at least for once
- Advice about healthy lifestyles (18).

The WHO recommended the basic program of antenatal care consists of tests, clinical procedures and follow-up actions scientifically demonstrated to be effective in improving maternal and newborn outcomes. The number of visits in the Basic Program is based on the need to perform activities proven to be effective rather than

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on a priori fixed number of visits. Table 12 shows activities of antenatal care model basic component (19).

Table 2 New WHO antenatal care model basic component checklist

FIRST VISIT for all women at first contact with clinics, regardless of gestational age. If first visit later than recommended, carry out all activities up to that time	1st (< 12 weeks)	2nd (26 weeks)	3rd (32 weeks)	4th (38 weeks)
Classifying form which indicates eligibility for the basic component of the program	√			
Clinical examination	√			
Clinically severe anaemia? Hb test	√			
Obstetric exam: gestational age estimation, uterine height	√			
Gynecological exam (can be postponed until second visit)	√			
Blood pressure taken	√			
Maternal weight/height	√			
Rapid syphilis test performed	√			
Detection of symptomatic sexually transmitted infections	√			
Urine test (multiple dipstick) performed	√			
Blood type and Rh requested	√			
Tetanus toxoid given	√			
Iron/folic acid supplementation provided	√			
Recommendation for emergencies / hotline for emergencies	√			
Complete antenatal card	√			

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Table 2 New WHO antenatal care model basic component checklist (cont.)

SECOND VISIT and SUBSEQUENT VISITS ***Gestational age – approx* 26wks 32wks 38wks**	1st (< 12 weeks)	2nd (26 weeks)	3rd (32 weeks)	4th (38 weeks)
Clinical examination for anaemia		√	√	√
Obstetric exam: gestational age estimation, uterine height, fetal heart rate		√	√	√
Blood pressure taken		√	√	√
Maternal weight (only women with low weight at first visit)		√	√	√
Urine test for protein (only nulliparous women and women with previous		√	√	√
pre-eclampsia)		√	√	√
Iron/folic acid supplementation given		√	√	√
Recommendation for emergencies		√	√	√
Complete antenatal card		√	√	√
THIRD VISIT: add to second visit				
Haemoglobin test requested			√	√
Tetanus toxoid (second dose)			√	√
Instructions for delivery/plan for birth			√	√
Recommendations for lactation/contraception			√	√
FOURTH VISIT: add to second and third visits				
Detection of breech presentation and referral for external cephalic version				√
Complete antenatal card, recommend that it be brought to hospital				√

Note: Mark the activities carried out as appropriate (unshared boxes). (Use the closest gestational age at the time of visit)

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Health providers, especially community workers and skilled attendants who come into contact with pregnant women, their families and supporters, must:

- Provide information to pregnant women, their families and the broader community on the signs of labor and when to seek care if danger signs appear during pregnancy, birth and (for both the woman and her baby) the postnatal period.
- Support women and their families in developing and reviewing the birth and emergency preparedness plan, including helping them to identify a safe place for the birth (taking account of personal and local circumstances) and deciding on the other elements of the plan such as child care and transport.
- Support women when needed, in discussing the plan with their partners and families. Discuss with traditional healers, traditional birth attendants (where they exist), other lay health workers and community leaders the need to promote the development of birth and emergency plans during pregnancy, to render community or group support to access appropriate care and services for the women and babies when needed.
- Disseminate information in the community on danger signs during pregnancy, birth and the postnatal period.
- Regularly discuss with women and community leaders possible community action and or plans to mobilize local assets and participate in local efforts for the emergency transfer of women and newborn, pregnancy or birth-related complications.
- Identify women and families who have a problem assessing appropriate pregnancy, birth or postnatal care and take action to help them to ensure access or report responsible local authorities to sort provision of maternal and neonatal care. (12)

2.1.2 Benefit of Antenatal Care

The percentage of births assisted by a skilled attendant is one potential process indicator and there is evidence of its strong association with levels of maternal mortality. There are large differences in the skills, equipment, and supplies needed for

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the appropriate care and management of normal compared with complicated deliveries (19).

Overall, there appears to be a consistent link between use of antenatal care and delivery assisted by a medically trained health care provider – doctor, nurse or midwife. Women reporting four or more antenatal visits are far more likely to have given birth with medical assistance than women reporting fewer visits. This is particularly the case in countries where the overall level of antenatal care use is low. Across all developing countries, skilled medical assistance at delivery is six times more common for women who had at least one antenatal care visit than for women who had none, and three times more common for women who had four or more visits than for women who had fewer visits (12).

The relationship between four or more antenatal care visits and delivering in a medical facility; hospital, health centre or clinic is even more pronounced. Women reporting at least four antenatal care visits were on average 3.3 times more likely to deliver in a medical facility than other women. Antenatal care has the potential to serve as a strategy for increasing use of a skilled health care provider at delivery. These skilled attendants: doctors, nurses and midwives are the providers of obstetric care for complications, though clearly they need the necessary backup, equipment and supplies if they are to function effectively (12).

2.1.3 Utilization of Antenatal Care

Utilization of ANC means frequency and content of ANC services provided by professional health personnel (obstetrician, physicians, midwife, assistant midwife and nurse) to pregnant women during pregnancies based on standardized care which is focused on prevention and promotion activities. Utilization studies need to examine use in the context of health outcomes. Despite the consensus from studies of different designs in favor of antenatal care, reservations about the extent of its true effectiveness must remain for several reasons. In places where antenatal care is lacking, delivery service are also likely to be poor and deficient in standard, provision and utilization of health service which are known to be effective. Adequate utilization

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of antenatal care reduces the morbidity of mother and child. How frequent a pregnant woman attends antenatal care is dependent on many factors (20).

Based on a physical examination, the patient can be compared to a standard which represents a normal pregnancy. Some of the marks an examiner looks for are general appearance, height, blood pressure measurement, clinical signs of anemia, signs of previous caesarean section (scar), uterine size (external examination) or found height in second and third trimester, Fetal well-being, using fetal movements or fetal heart sounds in the second and third trimester and signs of physical abuse.

Minimum care that should be provided at each visit is development of an individualized delivery plan which should be initiated at the first visit and reviewed at subsequent visits. The plan should take account of: the woman's preference for place of birth and skill level of birth attendant, family and social support, assessment of a woman's risk of complications during labor and delivery, assessment of satisfactory arrangements for transportation in case of emergency referral and distance (time) to referral facility, economic status, expected place of birth and skill level of attendant (confirmed at last antenatal visit), Tetanus toxoid immunization (number of doses according to need), iron and folic acid supplementation, disposable delivery kit if home birth planned (at first visit), home-based maternal records (given at first visit; subsequent visits and care recorded), country or population, specific policy or protocols, iodine supplementation, malaria prophylaxis, treatment for intestinal parasites, Psychosocial support and timing of next antenatal visit.

Prenatal care consists of regular examinations to check the expectant mother's blood pressure, weight, and changes in the size of the uterus and to check the urine for signs of infection or too much sugar. It also includes monitoring the baby's heartbeat, checking the baby's growth, and determining the baby's position during the last trimester. Prenatal care also includes counseling about the nutritional requirements of pregnancy, preparation for labor and delivery, and the care of the newborn (17).

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Women can access antenatal care services either by visiting a health center where such services are available or from health workers during their domiciliary visits. The former gives an idea about the voluntary utilization of the services by women while the latter is related to the quality aspect of the services. Antenatal care can also play a critical role in preparing a woman and her family for birth by establishing confidence between the woman and her health care provider and by individualizing promotional health messages. Further antenatal visits may raise awareness about the need for care during delivery or give women and their families a familiarity with health facilities that enables them to seek help more efficiently during a crisis. However, uptake of these services is far from universal even in settings where they are widely available. While antenatal care is considered essential for the health of both the mother and the child, it is important to analyze the possible factors contributing to its utilization.

Antenatal care coverage is an indicator of access and utilization of care during pregnancy. Definition Percentage of women who utilized antenatal care provided by skilled birth attendants for reasons related to pregnancy at least once during pregnancy among all women who gave birth to a live child in a given time period. 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. A skilled birth attendant is an accredited health professional – such as a midwife, doctor or nurse – who has been educated and trained to proficiency in the skills needed to manage normal (uncomplicated) pregnancies, childbirth and the immediate postnatal period, and in the identification, management and referral of complications in women and newborns. Traditional birth attendants trained or not, are excluded from the category of skilled attendant at delivery. In developed countries and in many urban areas in developing countries, skilled care at delivery is usually provided in a health facility. However, birth can take place in a range of appropriate places, from home to tertiary referral centre, depending on availability and need, and WHO does not recommend any particular setting. Home delivery may be appropriate for a normal delivery, provided

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that the person attending the delivery is suitably trained and equipped and that referral to a higher level of care is an option (19).

2.2 The Health Care Utilization Model

The Behavioral Model of health services use originally focused on the family as the unit of analysis, because the medical care an individual receives is most certainly a function of the demographic social and economic characteristics of the family as a unit. A major goal of the behavioral model was to provide measures of access to medical care.

The Andersen Health Seeking Behavior Model assumes that health seeking behavior is the result of interaction between characteristics of individuals, population and the surrounding environment. The model consists of several main components, they are predisposing characteristics (e.g. age, race), enabling resources (e.g. health insurance), needs (e.g. being sick or having further complications), personal health care behavior (e.g. exercise), outcomes (e.g. satisfaction with the health services) and environment (eg. health care policies). Inequality exists if factors other than needs, such as enabling resources, are the dominants of health care utilization. That means people utilize health services mainly because their resources allow them to, but not because of the severity of their sickness. The model has been widely used in studying factors related to utilization of different health care services (7).

Health services are part of the largest sector of economy to make a difference for better or sometimes worse for our society and its people. The current debate, recent defeat, and continuing directions of so-called "health care reform" reinforce my belief that studies of equity and efficient and effective access examined from a comprehensive and systemic perspective will be relevant and important for the indefinite future. Sociologists, particularly our younger colleagues with new perspectives and strong disciplinary and methodological training, have special contributions in these studies.

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Among the predisposing characteristics, demographic factors such as age and gender represent biological imperatives suggesting the likelihood that people will need health services. Social structure is measured by a broad array of factors that determine the status of a person in the community, his or her ability to cope with presenting problems and commanding resources to deal with these problems, and how healthy or unhealthy the physical environment is likely to be. Traditional measures used to assess social structure include education, occupation, and ethnicity. The model has been criticized for not paying enough attention to social networks, social interactions, and culture (21).

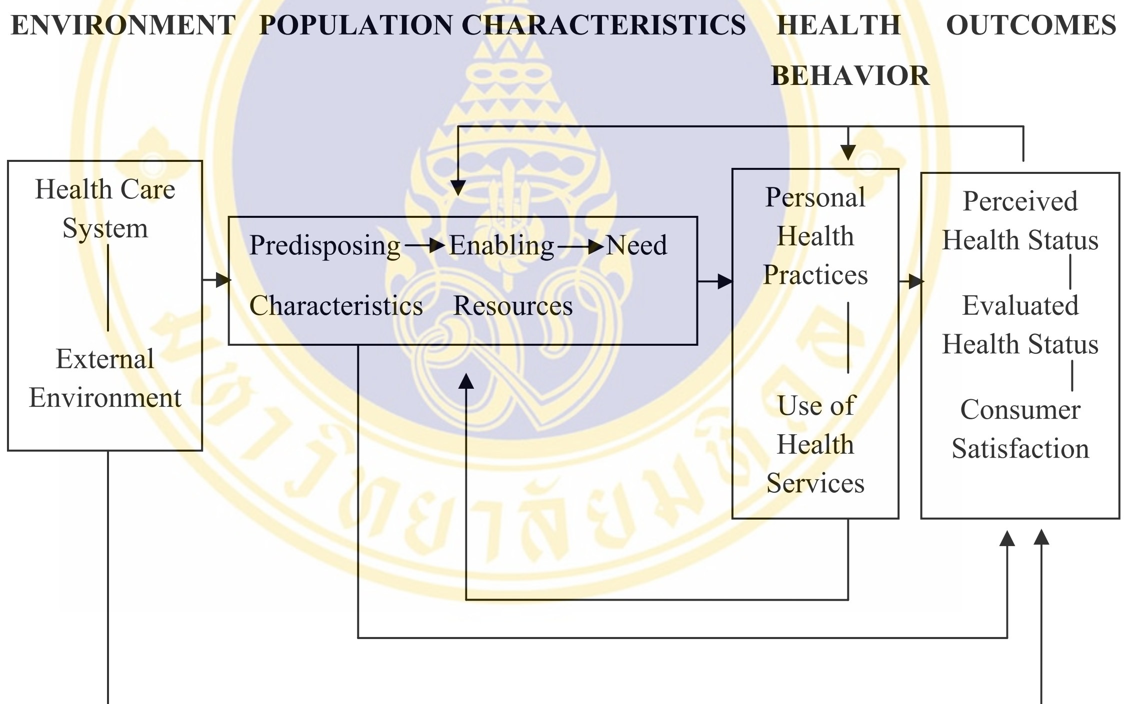

Figure 4 Emerging model of Andersen

Health-seeking behavior studies acknowledge that health control tools, where they exist, remain greatly under or inadequately used. Understanding human behavior is prerequisite to change behavior and improve health practices. Experts in health interventions and health policy became increasingly aware of human behavioral factors in quality health care provision. In order to respond to community perspectives

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and needs, health systems need to adapt their strategies, taking into account the findings from behavioral studies.

Rather than a review of findings from different studies, we have presented diverse approaches to health-seeking behavior from different theoretical orientations. Two major conclusions can be drawn from our reflections: there is a great richness of how data can be generated by using different approaches and different approaches have different objectives with regard to the type of data they aim to generate.

The variety in approaches goes against the present trend of simplifying human behavior. All too often, health-seeking behavior studies are reduced to assessments of existing local knowledge and practices within a community. All the different factors which are in play for making decisions about actions, ranging from socially sanctioned gender roles to deliberations about economic benefits and influence of peer pressure, reveal how complex health-seeking behavior in reality is. Often, health-seeking behavior studies use elements stemming from different models. While combinations of elements from different models can be interesting, and even lead to advancements in models, the eclectic use of such elements without a theoretical framework cannot be the aim of health-seeking behavior research. An enumeration of different factors without embedding them into a general concept that does not relate to them logically does not contribute much too understanding behavior.

The diversity of data that can be generated by different approaches poses the question about which approach should be used when investigating health-seeking behavior. It is also important to decide on the type of analysis you wish to carry out. A vulnerability approach necessarily centers on structural aspects of the health care and social systems, rather than on the personal motives of individuals to decide about actions. This is of course also an ideological decision of which approach one wants to choose, influenced by the type of intervention to be undertaken (7).

The socio-behavioral or Andersen model (Andersen & Newman, 1973) groups in a logic sequence three clusters or categories of factors (predisposing, enabling and

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need factors) which can influence health behavior. The model was specifically developed to investigate the use of biomedical health services. Later versions have extended the model to include other health care sectors, i.e. traditional medicine and domestic treatments (see Weller et al. 1997). Figure 5 outlines the different categories. An adaptation of the model has been proposed for studying health-seeking behavior for malaria.

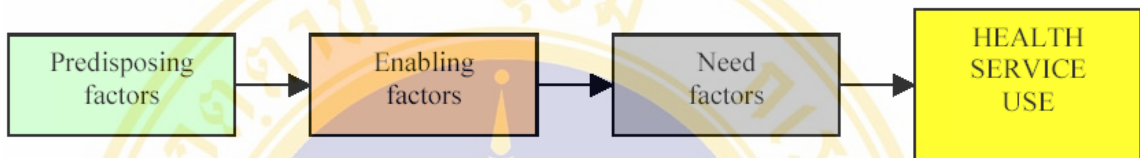

Figure 5 Health care utilization model

Examples of the factors organized in the categories of the Health Care Utilization Model (mainly following Weller et al. 1997) are:

- Predisposing factors: age, gender, religion, global health assessment, prior experiences with illness, formal education, general attitudes towards health services, knowledge about the illness etc.
- Enabling factors: availability of services, financial resources to purchase services, health insurance, social network support etc.
- Need factors: perception of severity, total number of sick days for a reported illness, total number of days in bed, days missed from work or school, help from outside for caring etc.
- Treatment actions: home remedies (herbal, pharmaceuticals), pharmacy, over the counter drugs from shops, injectionists, traditional healers, private medical facilities, public health services etc (7).

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2.3 Factors related to the ANC Utilization

2.3.1 Predisposing Characteristics

2.3.1.1 Maternal Age

Since younger and older women differ in their experience and influence, their health seeking behavior is likely to vary. In general, younger women are more likely to accept the modern health care than older women, as they are likely to have greater exposure to modern medicine due to more schooling. On the other hand, older women have accumulated knowledge on maternal health care and are therefore likely to have more confidence about pregnancy and child birth. Consequently, they may give less importance to obtaining institutional care (22).

2.3.1.2 Education of Respondents and Husbands'

Education as one of the most important determinants of use of the health care service especially women in developing countries. Education of women was found positively and independently predicted to use of delivery service in Ethiopia. Education of mothers was considered to have greater awareness of the existence of maternal health care services and benefits in using such services. Educated mothers are also likely to have better knowledge and information on modern medical treatment and have greater capacity to recognize specific illness. As education empowers women, they will have greater confidence and capabilities to make decisions to use modern health care services for themselves and their children. Education also enables women to take personal responsibility for their own health and health of their children (22).

2.3.1.3 Occupation of Respondents and Husbands'

As occupational groups at risk of insufficient antenatal care unskilled workers, trainees, students, and housewives were identified. High rates of utilization were found for the categories "top management/executive position" and "skilled workers". Rate of one or less consultations per pregnancy has declined significantly compared to 1998, but has increased again since 2000. Low utilization has not decreased, showing rather constant differences between the occupational categories

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throughout the observed 6-year period. Unskilled workers, trainees, students, and housewives avail less of prenatal care above standard (more than ten consultations per pregnancy) (23).

A study in India reported that working women have greater control over resources in household. They are likely to have greater knowledge about pregnancy and childbirth due to freedom of movement outside the household. They also tend to seek information on services available for pregnancy care during work. If women do not earn income as they work in their family business, they are expected to have little control over resources in the household and thus their ability to seek health care services would be limited (22).

2.3.1.4 Family Income

Living standard of the household was an important factor affecting institutional delivery. Rich women are much more likely to deliver in a hospital than their rural peers in Jamaica. Women with high standards of living were about 3-5 times likely to deliver in a health care institutional than those with lower living standard (22).

The cause of differences for MMR between the developing world and the industrialized world is poverty and the failure of health systems in low income countries to provide essential obstetric care for all. WHO, 1997 reported that home births are often the only option for women in low income countries. A large proportion of these home deliveries take place without skilled attendants. The World Health Organization estimates that 60% of births in low income countries occur outside a health facility, with 47% assisted only by traditional birth attendants (TBAs), family members, or without any assistance at all (23).

2.3.1.5 Knowledge on ANC

Budiono Laode reported majority of pregnant mothers had very high score on knowledge of ANC which includes iron tablet function (87.4%), tetanus toxoid vaccination (73.7%) medium score on knowledge includes correct number of times

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for ANC (67.2%) and low score on knowledge includes fetal movement; disappear or reduce movement was harmful (37.8%). In this study the overall assessment of knowledge according to the scoring system, he found 27.85% of pregnant mothers had good level of knowledge on ANC (24).

Krongkun Siripakdee reported there was relationship between pregnancy and health practice of the women. It means that the pregnant mothers who had knowledge on pregnancy would had good health practice during pregnancy and she also found that was a positive relationship between attitude towards pregnancy and health practice of pregnant mothers (22).

2.3.2 Enabling Resource

2.3.2.1 Accessibility and Availability of Services

During the second half of the 20th century, international awareness grew of the dimensions of the tragedy of maternal mortality; national governments collaborated with technical assistance and donor agencies to ensure that pregnant women in developing countries also had access to maternity care (12).

Access means that health care services are unrestricted by geographic, economic, social, culture, organization or linguistic barriers. Geographic access may be measure by modes of distance, transportation, travel time and any other physical barrier that could keep then client from receiving care. Economic access refers to affordability of products and services for client culture value, belief and attitudes. Organization access refers to the extent to which services are conveniently organized for prospective client and encompasses issues such as clinic hours and appointment system, waiting time and the mode of service delivery. Delay in seeking care, poor accessibility and substandard care factors in health institutions were identified as possible factors responsible for low use of health institutions and high maternal mortality (25).

Efforts to monitor progress in coverage of antenatal care have generally focused on quantifiable issues such as the number and timing of visits and the

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characteristics of users and non-users of antenatal care. The World Summit for Children goal calls for “access” to antenatal care, but access is a multidimensional concept that is very difficult to monitor. Most commentators recognize at least five different components of access, including physical availability of services, distance and/or time to a facility, economic and other costs associated with use of services, cultural and social factors that may impede access, and quality of services offered. Even if it were possible to reach consensus around the precise scope, meaning and importance of each of these elements, their measurement would still remain problematic, particularly for drawing valid comparisons between countries or regions. And access in itself says nothing about actual use of services. In practice, indicators of use are easier to define measure and interpret than indicators for access; data on use of antenatal care are widely available from household surveys. Indicators on use of antenatal care services provide no information on the content or quality of the services. Despite the broad consensus on what the content and quality should be, it is generally recognized that the antenatal care services currently provided in many parts of the world fail to meet the standards recommended by WHO (12).

2.3.2.2 Waiting Time

A waiting time is time the patient spent in the health center from arrival to first contact with a health care provider and until the patient was ready to leave the health center was recorded. Patient’s experience several separate wait times from when a health problem is first noticed until treatment is completed. From the government’s perspective, wait times are a symptom of problems in managing how patients get access to health care. Waiting times grow when there are more patients needing health services than the system can treat (26).

2.3.2.3 Information Acquired of Antenatal Care

Antenatal care is an opportunity to promote dialogue with clients, and nurture confidence, as well as to reinforce maternal health messages on, for example: nutritional advice, such as specific foods and taboos, rest, discomforts of pregnancy, hygiene, safer sex, planning for place of birth, birth attendant, promotion of clean delivery kits for home birth, counseling on referral hospital, transportation and blood

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transfusion, counseling on newborn care, including breast-feeding, family planning and child spacing. One of the most important components of antenatal care is to offer information and advice to women about pregnancy related complications and possible curative measures for early detection and management of complications. Some of the concepts and activities which need to be promoted through health care messages are number of visit ANC services under the guidelines, using drug during pregnancy, personal hygiene, nutritional advice (foods and taboos), safer sex, planning for place of birth, newborn and exclusive breast feeding, breast care, danger signs and family planning (12).

Important messages related to the health of women and infants should be conveyed to the community through a variety of media (radio, newspaper, television, plays, school curriculum) and as well as through health care workers. It is crucial that consistent messages be conveyed to women, their families, and the community through all channels. This information is part of the Healthy Lifestyles educational series provided by Health Net Federal Services' Preventive Care Services. Education is one of your best defenses against health risk factors and this series has been developed to help you maintain and improve your health. Health Net Federal Services is committed to your health and well-being (22).

2.3.2.4 Satisfaction of ANC Services

Women's level of satisfaction with prenatal care is a key measure of the quality of prenatal care and the quality of prenatal care can influence women's satisfaction (27). Quality of prenatal care is an important determinant of pregnancy outcome. Quality of Service refers to resource reservation control mechanisms, can provide different priority to different users or data flows, or guarantee a certain level of performance to a data flow in accordance with requests from the application program or service provider policy. Quality of health care services can be defined by either individual patient or population perspectives. Quality under perspectives includes two domains of quality, they are access and effectiveness. At the population level, quality consists of three additional factors, namely equity, efficacy and cost (25).

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Many women describe providers in the formal health care system as unkind, rude, brusque, unsympathetic and uncaring. Where health workers are perceived to be hostile and unfriendly, many women rely instead on traditional healers or Traditional Birth Attendants (TBAs) for antenatal, delivery and post partum care. This can lead to fatal delays in seeking adequate care for pregnancy related complications (28).

2.3.3 Need Factors

Prenatal care is the health care women receive throughout pregnancy starting as soon as the woman knows she's pregnant until the baby is born. Women should seek prenatal care as soon as they discover that they are pregnant. By starting prenatal care during the first three months of pregnancy, a woman increases her chances of having a safe, healthy pregnancy. While every effort is made to ensure that the data reported are accurate, it is clear that much depends on the ability of the respondent to identify correctly the type of health care provider she saw, whether a qualified doctor, midwife, nurse or other country-specific category of provider. Broadly speaking, the term 'skilled attendant' embraces qualified doctors, midwives, nurses and providers with equivalent levels of skills. Traditional birth attendants and other practitioners who are not part of the formal health care system are not defined as skilled providers (29).

2.3.3.1 Parity

Parity is strongly associated with utilization of maternal services. Most studies indicated a strong negative relationship between parity and utilization of medically trained personal at delivery. Women tend to give greater attention to their first pregnancy, as they are inexperienced with pregnancy and therefore more likely to seek modern give less attention to seeking maternal health care services. Conversely, women with higher parity are likely to seek modern give less attention to seeking maternal health care services (5).

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2.3.3.2 Type of Last Delivery

Another process indicator, which was originally proposed for monitoring access to health care services, is the proportion of all deliveries carried out by caesarean section. UNICEF, WHO, and UNFPA guidelines recommend that, as a general rule, a minimum of 5% of deliveries are likely to require a caesarean section in order to preserve the life and health of mother or infant. Rates higher than 15% indicate inappropriate use of the procedure. It goes without saying that a study of the rates by themselves tells us nothing about whether the women who really needed a caesarean delivery actually had one. Such information can only be obtained through a detailed study of the indications for caesarean delivery in individual health care facilities (17).

2.3.3.3 Complication during Current and Previous of Pregnancy

Antenatal health care services have a key role in enhancing child health and survival of children. Their utilization is very much concerned with the extent to which personal determinants of health and health behavior affect the use of these services. Complications of pregnancy and childbirth are believed to be the leading obstacles to child survival in most developing countries. Appropriate and timely antenatal care will help to reduce many of the pregnancy related problems. In addition, increasingly available modern life-sustaining procedures and technologies enable more women to survive adverse outcomes of pregnancy and delivery, and to delay death beyond 42 days postpartum (30).

Complication during previous pregnancy, labor, and purpureum was very important, cause tended to recur. History and circumstances of ante partum or postpartum hemorrhage, multiple gestation, eclampsia, sepsis, or other complications, operative delivery, stillbirth or neonatal death, small infant (premature or intrauterine growth retarded), intend of the pregnancy, social history and support, history of medical problems, history of female genital mutilation, any other complaints or problems should be cautious (13).

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2.3.3.4 Intention of Pregnancy

Maternal pregnancy intention has been widely impact on both the fetus and the infant, with well-established evidence that unintended pregnancy results in adverse health outcomes and undesired behaviors for the mother and infant. The effect of the father's pregnancy intention and how his feelings about the pregnancy may influence maternal behaviors and birth outcomes is less known (31).

2.3.3.5 Husband's Concern about Pregnancy

In many parts of the world, women's decision making power is extremely limited, particularly in matters of reproduction and sexuality. Mothers in law, husbands or other family members often make decision about maternal care. A study in Zaire, Nigeria found that almost all cases, a husband's permission is required for a woman seek health services including life saving care. If a husband is away from home during delivery, those present are often unwilling to take the women for care no matter how pressing the need appears to be. (30)

2.4 The Study Area

Nanggroe Aceh Darussalam (NAD) is one of the provinces in Indonesia that covers approximately an area of 58,375.63 km², consisting of 23 districts, 257 sub-districts and 6,219 villages. The total population in 2006 was 4,222,251 where, male and female populations were 2,094,746 and 2,127,505 respectively (32).

The health status of people in NAD Province is one of the lowest in the country. There were high rates of severe malnutrition and infant mortality; utilization of health services was low compared to other parts of provinces in Indonesia (33).

The Provincial health office of Nanggroe Aceh Darussalam reported that maternal mortality ratio in NAD Province in 2006 was 247/100,000 live birth and infant mortality rate 21/1,000 live birth. The major causes of maternal mortality were bleeding (27.1%), eclampsia (12.8%), infection (8.9%) and the other causes (51.2%);

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whereas perinatal mortality is caused by low birth weight (31.6%), asphyxia (23.3%), traumatic delivery (3.8%), tetanus neonatorum (2.3%) and 32% of other causes (34).

Aceh Besar is a large district under NAD Province, bordering to Malaka Sea and Banda Aceh Municipality in the north, Aceh Jaya district to the south, Pidie district in the east and extending to west of Indonesia Ocean; with an area of 2,974.12 km^2. It consists of 23 sub-districts and 604 villages, with total population of 302,662 and 77,258 households. The health facilities in Aceh Besar district consist of 25 health centers (puskesmas), 65 sub-health centers (puskesmas pembantu) and 623 units integrated services posts (posyandu).

Table 3 below shows that each sub-district has one health center except Seulimum and Peukan Bada which have two health centers. The main functions of health centers are promotive, preventive, curative and rehabilitative services. Besides, they are also responsible for six main programs: health promotion, environment health, mother and child health, communicable disease, nutrition and immunization. The current policy of providing basic obstetric emergency services in health centres or puskesmas and comprehensive obstetric emergency services in hospitals is expected to overcome delays in referring and providing treatment to women with obstetric complications.

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Table 3 Distribution of sub districts, health centers and population in Aceh Besar District under Nanggroe Aceh Darussalam Province

No	Sub district		Health Center	Population
1	Lhoong	1	Lhoong	9,187
2	Lhoknga	2	Lhoknga	11,977
3	Leupung	3	Leupung	2,727
4	Indrapuri	4	Indrapuri	17,267
5	Kuta Cot Glie	5	Kuta Cot Glie	11,547
6	Seulimum	6	Seulimum	19,761
		7	Lam Teuba	
7	Kota Jantho	8	Kota Jantho	7,997
8	Lembah Seulawah	9	Lembah Seulawah	7,986
9	Mesjid Raya	10	Mesjid Raya	10,180
10	Darussalam	11	Darussalam	19,812
11	Baitussalam	12	Baitussalam	12,851
12	Kuta Baro	13	Kuta Baro	21,675
13	Montasik	14	Montasik	16,905
14	Ingin Jaya	15	Ingin Jaya	24,029
15	Krueng Barona Jaya	16	Krueng Barona Jaya	11,524
16	Suka Makmur	17	Suka Makmur	13,865
17	Kuta Malaka	18	Kuta Malaka	5,473
18	Simpang Tiga	19	Simpang Tiga	5,216
19	Darul Imarah	20	Darul Imarah	41,555
20	Darul Kamal	21	Darul Kamal	6,401
21	Peukan Bada	22	Peukan Bada	10,930
		23	Lampisang	
22	Pulo Aceh	24	Pulo Aceh	4,407
23	Blang Bintang	25	Blang Bintang	9,390

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The existing report of maternal and child health in Aceh Besar shows that maternal death occur 10 of 212 cases (4.7%), perinatal death 26 of 605 cases (4.2%) and infant death 47 cases of 808 (5.8 %) in 2006. (34)

The result of antenatal care can be reported as K1 and K4 coverage. K1 is first visiting of pregnant women to health centers or health personnel at the first trimester based on standards, and K4 is the second visit of pregnant women to health centers or health personnel at third trimester based on standards. The percentage of K1 was 87 %, K4 was 76 % of 7,516 pregnant women in Aceh Besar District and delivery service by health personnel was 99.8 % in 2006; whereas delivery service by Traditional Birth Attendant (TBA) was 15 of total delivery (0.2 %). Availability of health personnel at health services in Aceh Besar district is shown in Table 4:

Table 4 Distribution health personnel based on classification in Aceh Besar District, Nanggroe Aceh Darussalam Province in 2007

Classification	Total	Percentage	Ratio of population
Medic	81	11.2	1 : 3,737
Nurses and midwives	425	58.8	1 : 712
Pharmacist	38	5.2	1 : 7,965
Nutritionist	47	6.5	1 : 6,440
Medic Technical	29	4.0	1 : 10,437
Sanitarian	62	8.6	1 : 4,882
Public health	41	5.7	1 : 7,382
Total	723	100	

The table 4 reveals that 11.2 % of the health service providers include medical doctors and dentists. Majority of health service providers were nurses and midwives (58.8% of total health personnel) and most of them live in the villages (35).

Health centers in Aceh Besar District are open every day from 08.00 am to 02.00 pm except on Sunday. Approximately, pregnant women who visited for

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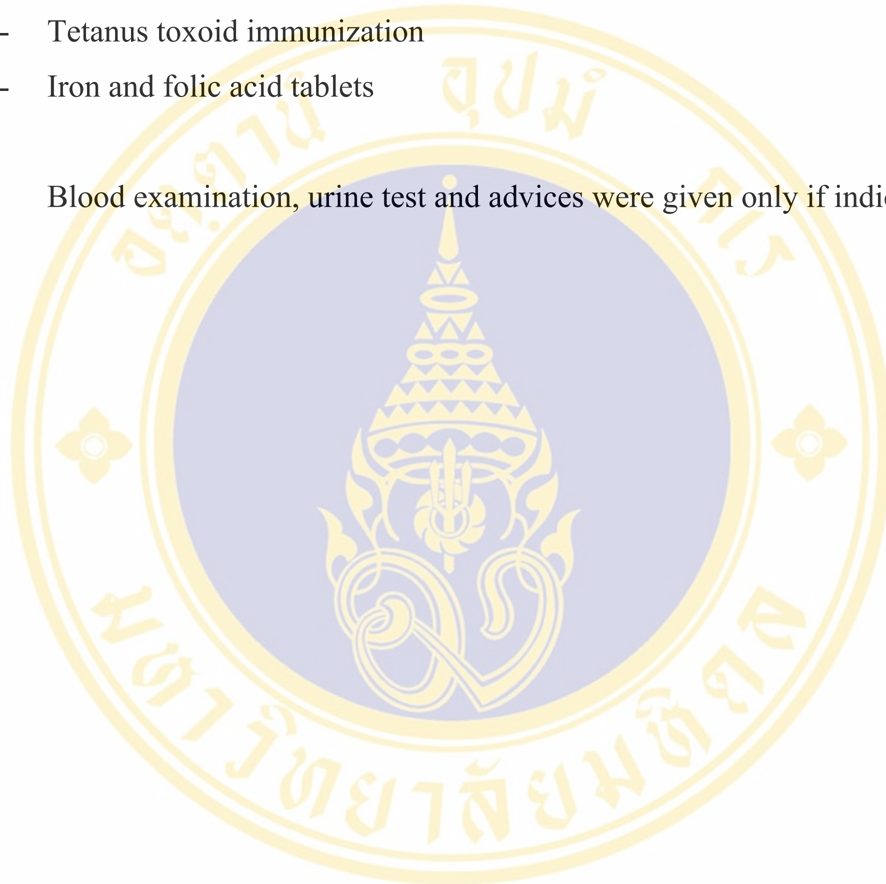
antenatal care were ranging from three to five per day at health centers. They receive 5 standards of antenatal care services as follows:

- Measurement of weight and height
- Blood pressure
- Fetal beat heart
- Tetanus toxoid immunization
- Iron and folic acid tablets

Blood examination, urine test and advices were given only if indicated.



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CHAPTER 3
RESEARCH METHODOLOGY

3.1 Study Design

The study design was cross-sectional study which attempted to determine the factors related to utilization of antenatal care among pregnant women at health centers in Aceh Besar district.

3.2 Study Population

The population in this study was all of pregnant women who come to health centers in Aceh Besar District under Nanggroe Aceh Darussalam Province, Indonesia. The sample was pregnant women in the third trimester of pregnancy who come to selected health centers during January 2008. The health centers selected were 5 health centers. They are Ingin Jaya, Indrapuri, Darul Imarah, Montasik and Suka Makmur.

3.3 Sample Size and Sampling Technique

The estimated sample size is calculated according to the following formula: (36)

$$n = \frac{z_{\alpha/2}^{2}\, pq}{d^{2}}$$

Where:

n = Number of sample size

Z = Z score at 95% confidence interval, Z = 1.96

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p = Anticipated population proportion; P = 0.76 (Estimated from proportion of ANC coverage from report on MCH, plan 2004 in Nanggroe Aceh Darussalam Province) (12)

q = 1 – P = 0.24

d = allowance for relative error between population and sample value = 0.07

α = 0.05

$$n = \frac{(1.96)^2\ 0.76\ (1-0.76)}{(0.07)^2}$$

n = 143

The minimum expected sample size was 143. To reduce error, 160 respondents were interviewed instead of 143 determined by above formula.

Multi-stage cluster sampling technique as show in Figure 6 was applied to respondents in order to obtain information about their antenatal care service utilization at Aceh Besar District. This district comprised of 23 sub districts. Every sub-district has one health center. Five sub district were purposively selected from 23 sub-districts because there was large number of population. They were Ingin Jaya, Indrapuri, Darul Imarah, Montasik and Suka Makmur. Thirty cases were randomly selected from each health center.

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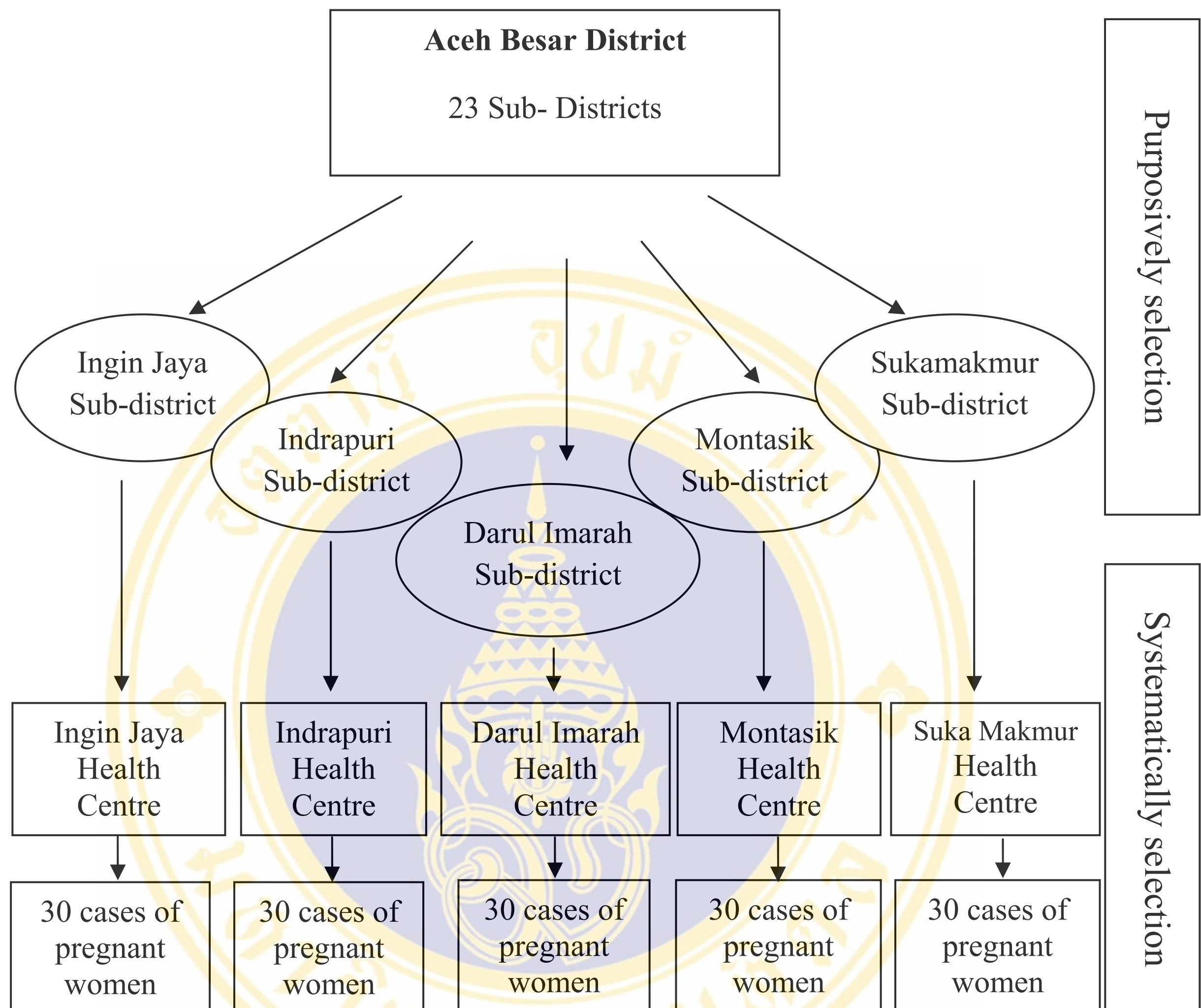

Figure 6 Multi-Stage Cluster Sampling

3.4 Data Collecting Tools and Methods

The instrument in this study was a structured questionnaire that measure daily ANC services utilization. Most of questions are close-ended questions that are evaluated using a rating scale and checked against the health center's records. The technique used for obtaining complete data was an interview. The questionnaire was prepared in English and translated into Indonesian language which was used locally for data collection. The questionnaire was divided into four parts as follows:

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Part I Predisposing characteristics included maternal age, education of respondents and husbands', occupation of respondents and husbands', family income and knowledge of respondent on ANC services.

Part II Enabling resources included accessibility and availability, waiting time, information on ANC services and satisfaction on ANC services received.

Part III Need factors included parity, type of last delivery, complication during current pregnancy, intent pregnancy and their husbands concern about pregnancy.

Part IV Utilization of antenatal care services was adequacy of antenatal care visit to health centers.

3.5 Pretesting of Questionnaire

Prior to the actual data collection the questionnaires were pre-tested at a health center in Aceh Besar District, Nanggroe Aceh Darussalam Province, Indonesia. The questionnaire was pre-tested with 30 respondents. The reliability of the knowledge part was confirmed by Kuder-Richardson formula 20 (KR20) and Cronbach's alpha coefficient for satisfaction.

In pretest, the value of Kuder-Richardson formula 20 and Cronbanch's alpha were 0.68 and 0.80 respectively. As the KR 20 for knowledge section was not high, the questionnaire was modified specifically question number fifteenth of the section in order to increase the level of reliability. As the Cronbach's alpha coefficient for satisfaction section was high, the questionnaire was modified specially question number thirty five and number thirty nine in order to easier and clearer.

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3.6 Data Collection Procedure

Before data collection, researcher had sought permission for study from the District Health Office of Aceh Besar District and head of health centers which was conducted research also permission and cooperation.

Data collection was carried out by four trained interviewers and researcher at health centre. The interviewers were trained before hand by researcher in order to make sure that all of them understand every item of the questionnaire. All of pregnant women in the third trimester of pregnancy were taken from those who come and visited the mother and child health clinic at selected health centers. Data was collected by the researcher and interviewers were done by using structured questionnaires with some criteria of respondents.

In this study, respondents were indentified for data collection during the time they were waiting or after receive examination. They were requested by the interviewers to provide their general and specific information according to the questionnaire. The data was checked on the spot, error rectified and missing data incorporated in the forms. The researcher observed the data collection process by herself and counter checked the entries at random to ensure quality of the data collection.

3.7 Data Management

The questionnaire was being divided into four parts as follows:

Part I: Predisposing Characteristics

Predisposing characteristics part consisted of 7 items about maternal age, education of respondents and their husband, occupation of respondents and their husband, family income and knowledge on ANC of respondents.

Knowledge on ANC of respondents included 12 items consisting of 7 positive questions and 5 negative questions. The questionnaire provided 3 choices: “True”,

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"False", and "Don't know". The knowledge on ANC of respondents was measured by 12 items. Correct answer was given a score of 1 and 0 for incorrect answer or do not know. Knowledge part should be test of normal distribution. In descriptive analysis, knowledge was divided into three levels. They are high, moderate and low knowledge by using Bloom's cut off points for which the cut-off points was determined by 60% and 80% of the full mark. Therefore, the cut-off point was determined as follows:

- Good knowledge: total score is more than 80%
- Moderate knowledge: total score between 60 – 80%
- Poor knowledge: total score less than 60%

Frequency and percentage of each level was obtained.

Part II: Enabling Resources

The enabling resources comprised of 35 items. It was divided into 4 components consisted of accessibility and availability of services, waiting time, information acquired including source of information had received and satisfaction with the antenatal care services. The question in this part was dichotomous: "yes and no". While the source of information had received was the multiple answer which that the respondents could answer as many as they had.

The component related to the accessibility of antenatal care services had 5 questions asked the pregnant women. The accessibility was classified into two groups; easy access and difficulty access by using percentiles. The waiting time consist of 3 questions and classified into two groups as short time and long time by also using percentiles, while the information acquired about pregnancy and antenatal care was classified into three groups as enough, fair and less information by using percentiles.

To assess the satisfaction on antenatal care services, the respondents were asked 9 questions with total score of 45. Pregnant women were asked to rate their contentment level toward antenatal care services. There were five scales satisfaction of antenatal care services as Likert rating scale were applied as follows "very satisfied", "satisfied", "neutral", "dissatisfied" and "very dissatisfied". All of

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questions consist of positive question. If the respondent answer was "very satisfied' the score of 5 was provided, "satisfied" the score of 4, "neutral" the score of 3, "dissatisfied was provided score of 2, and "very dissatisfied" the score of 1 was provided. The satisfaction of respondent on antenatal care services were classified into three levels by using percentiles as cut of point because the distribution was not normal. Frequency and percentage of each level was obtained.

Part III: Need Factors

The need factors part consists of 9 items. It consisted of 5 components: parity, last history delivery, complications during current and previous pregnancy, intention of pregnancy and husband's concern.

Parity item was divided in four categories; they were nulliparaous, primiparaous, multiparaous and grand multiparous. Last delivery by normal was given 0 mark and by caesarean section was given 1 mark. No complications during current and previous pregnancy were given 0 mark and had complications were given 1 mark. Wanted pregnancy was given 1 mark and unclear or unwanted was given 0 mark. If husband's concern about pregnancy was given 1 mark and not concern was given 0 mark. The nulliparaous was skipped for variables of type of last delivery and complication during previous pregnancy.

Husband's concern consist of 3 items under concern and obtaining the responses then they summed together to generate the overall scores. By looking at distribution of the overall scores, they are divided into two classifications as determine the concern of husband. The scores below median of total score will be considered not necessary and scores falling ≥ median of total will be considered as necessary of ANC services respectively.

Part IV: Utilization of Antenatal Care Services

This part consists of visiting of pregnant women to health centers looked at the recording of Mother and Child Handbook (MCH Handbook). Minimum once of visiting to antenatal care services at first trimester and once of visiting at second

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trimester was given 1 mark and 0 mark if not visiting the antenatal care services at first and or second trimester of pregnancy.

3.8 Data Analysis Procedure and Statistics Used

The data was edited, coded, recorded and summarized by using *EpiData* Version 3.02 and MINITAB version 13 for windows to the descriptive and inferential statistics perform.

Descriptive study such as frequency and percentage was calculated to explain general information. Mean, median, standard deviation, minimum and maximum were also calculated for quantitative data. First quartile (Q1), third quartile (Q2) and Quartile Deviation (QD) were calculated for variables which their distributions were not normal distribution.

Inferential statistics was used to determine the relationship between dependent and independent variables using statistical methods:

- Chi-square test was used to ascertain significance association between independent variables and utilization of antenatal care. Fishers exact was applied if the result of Chi-square test show more than 20% of cell with expected frequency less than 5.0. The test showed that there was significant association between these factors and utilization of antenatal care services if p-value was <0.05.
- Multiple logistic regression was used to identify significant factors related to utilization of antenatal care services.

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CHAPTER 4
RESULTS

A cross-sectional design study was conducted to ascertain the utilization of antenatal care services in five health centers, Aceh Besar District under Nanggroe Aceh Darussalam Province, Indonesia. One hundred and sixty pregnant women in the third trimester who utilize antenatal care services at selected health centers were interviewed face to face using structured questionnaires. Researcher and four trained interviewers were entrusted for data collection. The data collection was performed for three weeks during January, 7th to 28th, 2008 (exclude weekend) at five health centers: Ingin Jaya, Indrapuri, Darul Imarah, Montasik and Suka Makmur in Aceh Besar District.

Chi-square test was used to find out the association between the predisposing characteristics, enabling resources, need factors and utilization of antenatal care services. Logistic regression was used to identify the strength of relationship between predisposing, enabling, need factors, and utilization of antenatal care services. The study results are hereby presented in descriptive and analytic forms, as under in following parts:

Part 1 Predisposing characteristics

Part 2 Enabling resources

Part 3 Need factors

Part 4 Utilization of antenatal care services

Part 5 Relationship between utilization of antenatal care services and predisposing characteristics

Part 6 Relationship between utilization of antenatal care services and enabling resources

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Part 7 Relationship between utilization of antenatal care services and need factors

Part 8 Significant predictors for the antenatal care utilization

4.1 Predisposing Characteristics

The descriptive statistics for predisposing characteristics included maternal age, education of respondents and husbands', occupation of respondents and husbands', average of family income and level of knowledge described accordingly in Table 5.

Table 5 revealed that the youngest age of pregnant women was 17 years old and the oldest age was 41 years old. The mean and the standard deviation of age were 28.05 years and 5.59 years respectively. Among 160 pregnant women, 4.38 percent belonged to the age group less than 20 years old and 11.88 % to above 35 years old. Majority (83.75%) were 20 – 35 years old.

Regarding the education levels, the majority (40.63%) of pregnant women completed high school level. The second large group was secondary school level (23.75%) and very few of them were illiterate (1.88%). Most of husbands completed high school level education (55.63%) and 15.63 percent of them completed university degree. Only minimum of them were illiterate (0.63%).

The majority (63.13%) of respondent's occupations were housewives. The second large group (21.88%) was government employee and only 3.7 percent of pregnant women were farmers. The maximum (43.75%) of husband's occupations were private/business, government employee (21.25%) and labor (16.87%) respectively.

The monthly family income calculated in rupiah earned in month. The respondents were divided into three groups based on percentiles, because the distribution of family income was not normal. The percentile 25 was referred to the

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first quartile, the percentile 50 was referred to the second or middle quartile and percentile 75 was referred to the third quartile. The respondents securing a score above third quartile (2,000,000 rupiah) was considered as high income while those securing score less than first quartile (800,000 rupiah) was considered as low income. The majority of family income was moderate (61.88%), while minimum of the group was high income (15.0%). The minimum and the maximum of family income were 200,000 and 5,000,000 rupiah. Median and quartile deviation of family income were 1,000,000 and 600,000 rupiah respectively.

Table 5 Number and percentage distribution of the respondents classified by predisposing characteristics

Characteristics	Frequency	%
Maternal age (years)		
< 20	7	4.38
20 – 35	134	83.75
> 35	19	11.88
Mean: 28.05 Median:27.50 SD: 5.59	Min: 17.0	Max : 41.0
Education of Respondents		
No Education/ Illiterate	3	1.88
Primary school	15	9.38
Secondary school	38	23.75
High school	65	40.63
Academy	15	9.38
University	24	15.00
Education of Husbands		
No Education/Illiterate	1	0.63
Primary school	13	8.13
Secondary school	21	13.13
High school	89	55.63
Academy	11	6.88
University	25	15.63

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Table 5 Number and percentage distribution of the respondents classified by predisposing characteristics (cont.)

Characteristics	Frequency	%
Occupation of Respondents		
Housewife	101	63.13
Farmer	6	3.75
Private/Business	10	6.25
Government Employee	35	21.88
Others	8	5.00
Occupation of Husband		
No Job	1	0.63
Farmer	22	13.75
Business	70	43.75
Government Employee	34	21.25
Laborer	27	16.87
Others	6	3.75
Family Income (Rupiah)		
Low (200,000 – 799,999)	37	23.13
Moderate (800,000 – 2,000,000)	99	61.88
High (2000,001 – 5,000,000)	24	15.00
Median:1,000,000 Q1:800,000 Q3:2,000,000 QD:600,000 Min:200,000 Max:5,000,000		

Knowledge of Pregnant Women on ANC Services

Table C-1 in appendixes shows the knowledge of pregnant women on antenatal care services in each question. The result revealed that more than 90 percent of the respondents answered correctly on statements: prenatal care is the health care during pregnancy; comprehensive medical care provided by health care professional; should visit ANC services at the first time when miss menstrual, consists of regular examinations to check the expectant of blood pressure, weight, fetal heartbeat, tetanus immunization, iron and folic supplementary; should visit ANC services as soon as

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possible if does not feel fetal movement, and also necessary of blood testing to assess anemia status and health education is given due to enhance breastfeeding. More than 50 percent of them knew that pregnant women should attend ANC services more than 2 times during pregnancy and the objective of ANC services is conducted not only to detect pregnancy. The percentage of correct answer was very poor (22.0%) in the statements regarding benefit of tetanus toxoid vaccination. Only 43.13 percent of respondents knew that risk assessment during ANC should be done at the first time service. Whereas, level of knowledge was divided into three levels by using Bloom's cut off point and presented in Table 6.

Table 6 Number and percentage distribution of the respondents classified by level of knowledge on antenatal care services

Level of knowledge on ANC Services	Frequency	%
Good (> 10.00)	82	51.25
Moderate (7.00-10.00)	50	31.25
Poor (< 7.00)	28	17.50
Median = 10.0 Q1 = 8.0 Q3 = 11.0 QD = 1.5	Min = 3.0	Max = 12.0

As displayed in Table 6 above, half (51.25%) of the respondents had good knowledge, while the percentage of moderate and poor level of knowledge were 31.25 percent and 17.50 percent respectively. The median score of the respondents' knowledge was 10.0 with first and third quartile of 8.0 and 11.0 respectively. The minimum and maximum score of knowledge on antenatal care were 3.0 and 12.0 consecutively.

4.2 Enabling Resources

The enabling resources consist of four components. They are accessibility, waiting time, information acquired and satisfaction. Table C-2 in appendixes shows that more than one third of the respondents lived near to health center, easy to access,

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easy and convenient transportation and does not take much time for travelling. The majority of the pregnant women (90.63%) spent short time to wait for antenatal care services at examination, treatment and medicine. In regard to the information acquired about antenatal care visit under the guideline was low percentage among respondents (45.60%). The percentage of required information about health promotion and disease prevention such as safe activity, nutritional advice, family planning, planning for birth place and danger sign were higher (80%) than other information. While the information about personal hygiene, and newborn care and breast feeding were 64.38 percent and 52.50 percent consecutively. The percentage of information on breast care and safer sex were very low (28.75% and 33.75%) respectively. Most of the respondents believed the recommendations and suggestions of the health personnel.

Regarding the source of information acquired, Table C-3 in appendix reveals more than 90% of respondents have received the information about antenatal care from health personnel, family member and friends. Nearly one third (61.25%) of them had received information from Mother and Child Health Handbook (MCH Handbook) and only 8.75 percent of the respondents received information from the traditional birth attendants.

The Table 7 below presents each variables of enabling resources (exclude satisfaction) while Table 8 reveals level of satisfaction with the antenatal care services.

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Table 7 Number and percentage distribution of the respondents classified by enabling resources

Variables				Frequency	%
Accessibility and availability					
Easy access (score > 3)				125	78.13
Difficult access (score ≤ 3)				35	21.88
Median= 0.0	**Q1= 0.0**	**Q3= 3.0**	**QD= 1.5**	**Min = 0.0**	**Max = 5.0**
Waiting time					
Short time (score ≥1)				129	80.63
Long time (score <1)				31	19.38
Median= 0.0	**Q1= 0.0**	**Q3= 0.0**	**QD= 0.0**	**Min = 0.0**	**Max = 3.0**
Information acquired					
Enough (score >10)				28	17.50
Fair (score 6 – 10)				93	58.13
Less (score < 5)				39	24.38
Median= 8.0	**Q1= 6.0**	**Q3= 10.0**	**QD= 2.0**	**Min = 1.0**	**Max = 10.0**

Table 7 shows more than three fourth of respondents were easy to access the health centers. Nearly 81 percent spent short time to wait for services and only 17.5 percent obtained enough information acquired on antenatal care.

Satisfaction of Antenatal Care Services

Table C-4 in appendix reveals that more than 70 percent of the pregnant women were satisfied with the willingness, knowledge, courtesy of health personnel, environment of ANC clinic and convenient services hour. More than 50.0 percent of the pregnant women were satisfied with adequacy of equipment, proper referral system and overall ANC services. The satisfaction of adequate information from the health personnel were less than 50 percent.

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The overall satisfaction with the antenatal care services at health centers were classified into three levels: high, moderate and low by using percentiles. The level of satisfaction of pregnant women is displayed in Table 8.

Table 8 Number and percentage distribution of the respondents classified by level of satisfaction on antenatal care services

Level of Satisfaction	Frequency	%
High (score > 37)	35	21.88
Moderate (score 32-37)	94	58.75
Poor (score < 32)	31	19.38
Median= 34.0 Q1=32.0 Q3=36.75 QD=4.7	**Min = 18**	**Max = 45**

Table 8 shows that the respondents with high and low satisfaction do not have much difference, while moderate satisfaction was maximum (57.75%) for antenatal care services at health center. The minimum and the maximum scores were 18 and 45. The median score and quartile deviation were 34.0 and 4.7 respectively.

4.3 Need Factors

Need factors was assessed through parity, last delivery history, complication during current and previous pregnancy, intention of pregnancy and husband's concern. Table 9 presents results of parity, health problem during current pregnancy, intention of pregnancy and husband's concern and Table 10 shows information about health problem during current pregnancy. Whereas Table 11 shows type of last delivery, health problem and complication during last pregnancy.

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Table 9 Number and percentage distribution of the respondents classified by need factors

Variables	Frequency	%
Parity		
Nulliparous	58	36.25
Primiparous	39	24.38
Multiparous	56	35.00
Grand multiparous	7	4.38
Intention of pregnancy		
Wanted	132	82.50
Unclear	25	15.63
Unwanted	3	1.88
Overall of husband's concern about pregnancy		
Yes	116	72.50
No	44	27.50
Median = 3.0 Q1 = 2.0 Q3 = 3.0 QD = 0.5	**Min = 0.0**	**Max = 3.0**

Table 9 shows that the percentage of nulliparous was the highest (36.25%) and grand multiparous was the lowest (4.38%). Related to the intention of pregnancy, majority (82.50%) of the respondents attained wanted pregnancy, whereas unclear and unwanted pregnancies were 15.63 percent and 1.88 percent respectively. In regard to husband's concern, Table B-5 in appendix showed more than 70 percent gave attention about pregnancy, accompanied to the health care center and helped them with domestic work.

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Table 10 Number and percentage distribution of the respondents classified by health problem during current pregnancy

Variables*	Yes		No	
	n	%	n	%
Health problem during current pregnancy				
Bleeding per vagina	4	2.50	156	97.50
Headache and edema	12	7.50	148	92.50
Cramp	57	35.63	103	74.37
Hypertension	3	1.88	157	98.22
Morning sickness	53	33.13	107	66.87
Others	4	2.50	156	97.50

* Multiple answers

The health problems during current pregnancy were bleeding per vagina, headache and edema, cramp, hypertension, morning sickness and others. Very few of them had health problem during pregnancy. The highest percentage of health problems during current pregnancy were cramp and morning sickness: 35.63 percent and 33.13 percent respectively.

Table 11 shows the number and percentage of last history delivery, health problems and complications during previous pregnancy. These results focused on primiparous, multiparous and grand multiparous. The total respondents were 102 pregnant women when nulliparous was excluded.

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Table 11 Number and percentage distribution of the respondents classified by type of last delivery, health problems and complications of previous pregnancy

Enabling resources	Yes		No	
	n	%	n	%
Type of last delivery by caesarean	12	11.76	90	88.24
Health problem during previous pregnancy (multiple answers)				
Hypertension	3	2.94	99	97.06
Edema	6	5.88	96	94.12
Anemia	6	5.88	96	94.12
Diarrhea	1	0.98	101	99.02
Spotting	2	1.96	100	98.04
Others	2	1.96	100	98.04
Complication during previous pregnancy (multiple answers)				
Abortion	15	14.71	87	85.29
Post partum hemorrhagic	2	1.96	100	98.04
Infection	1	0.99	101	99.02
Pre eklampsi/ Eklampsia	5	4.90	97	95.09

Among primiparous, multiparous and grand multiparous (102 out of 160), one-third of them had complications during the last pregnancy. The result revealed that 11.76 percent of respondents delivered by caesarean section and 88.24 percent by normal. The previous health problems, edema and anemia were the highest among health problem (5.88%). Other health problems during previous pregnancy were 1.96 percent including hyperthyroid and less fetal movement. Regarding complications during previous pregnancy, the highest was abortion (14.71%) and lowest was infection (0.99%).

4.4 Utilization of Antenatal Care Services

According to the utilization of antenatal care services, there were 63.13 percent of pregnant women in Aceh Besar district had adequate utilization of

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antenatal care and 36.88 percent had inadequate utilization of antenatal care. The result of antenatal care services utilization as shown in Table 12.

Table 12 Number and percentage distribution of the respondents classified by utilization of antenatal care services

Utilization of antenatal care services	Frequency	%
Adequate	101	63.13
Inadequate	59	36.88

4.5 Relationship between Predisposing Characteristics and the Utilization of Antenatal Care Services

To find out the relationship between dependent and independent variables, some variables such as age, education, occupation, parity, and intention of pregnancy were regrouped in order to get enough respondents for statistical analysis. Chi-square test was used to determine the association between utilization and independent variables. Fishers exact test was applied if the result of Chi-square test showed more than 20% of cells with expected frequency less than 5.0.

The age was classified into two groups based on guidelines from Indonesian Ministry of Health: high risk group (<20 years and > 35 years) and normal group (20 to 35 years). Education level was regrouped into primary school, secondary school, high school and university where primary school and illiterate were classified as primary school group; academy and university were determined as university group. Occupation of pregnant women was classified into housewife, farmer, government employee and others; whereas occupation of their husband was classified as farmer, business, government employee and laborer (laborer and others were combined). Parity was categorized into normal and high risk group; normal group includes nulliparous, primiparous and multiparous. While, grand multiparous was categorized in high risk group. Intention of pregnancy was regrouped further into two groups:

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wanted and unwanted (unclear and unwanted). Table 13 shows the result of Chi-square test after regrouping.

Table 13 Association between predisposing characteristics and the utilization of antenatal care services

Predisposing Characteristics	Utilization of antenatal care services				χ^2	P value
	Adequate		Inadequate			
	n	%	n	%		
Maternal age					**2.29**	**0.130**
High risk	13	50.00	13	50.00		
Normal	88	65.67	46	34.33		
Education of respondents					**29.44**	**< .001**
Primary school	4	22.22	14	77.78		
Secondary school	18	47.37	20	52.63		
High school	44	67.69	21	32.31		
University	35	89.74	4	10.26		
Education of husbands'					**11.86**	**0.008**
Primary school	7	50.00	7	50.00		
Secondary school	10	47.62	11	52.38		
High school	53	59.55	36	40.45		
University	31	86.11	5	13.89		
Occupation of respondents					**16.15**	**0.001**
House wife	54	53.47	47	46.53		
Farmer	16	66.67	8	33.33		
Government employee	31	88.57	4	11.43		
Occupation of husbands'					**16.05**	**0.001**
Farmer	11	47.83	12	52.17		
Business	47	67.14	23	32.86		
Government employee	29	85.29	5	14.71		
Laborer	14	42.42	19	57.58		

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Table 13 Association between predisposing characteristics and the utilization of antenatal care services (cont.)

Predisposing Characteristics	Utilization of antenatal care services				χ^2	P value
	Adequate		Inadequate			
	n	%	n	%		
Family income					**21.39**	**< .001**
Low	13	35.14	24	64.86		
Moderate	66	66.67	33	33.33		
High	22	91.67	2	8.33		
Knowledge on ANC					**15.09**	**0.001**
Poor knowledge	18	64.29	10	35.71		
Moderate knowledge	21	42.00	29	58.00		
Good knowledge	62	75.61	20	24.39		

Table 13 revealed that the pregnant women with high risk age group of inadequately utilized antenatal care were higher percentage (50.0%) than those at normal age group (34.33%). Regarding to education level, pregnant women and their husbands with university degree had the lowest percentage of inadequate ANC utilization compared to others. The pregnant women and their husbands who were government employees had the lowest percentage of inadequate ANC utilization compared to those with other employment. Pregnant women with high family income had the lowest percentage of inadequate utilization of ANC services compared to those with lower family income. Pregnant women with good knowledge on antenatal care had the lowest percentage (24.39%) of inadequate ANC utilization compared to those with poor knowledge.

In conclusion, there were significant associations between respondent's and husbands' education, respondents and husbands' occupation, family income and knowledge with the utilization of antenatal care services. But maternal age had no significant association with utilization of antenatal care services.

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4.6 Relationship between Enabling Resources and the Utilization of Antenatal Care Services

Table 14 shows the relationship between enabling resources and utilization of antenatal care services. Accessibility and availability of services, waiting time, information acquired and satisfaction of antenatal care services were variables of enabling resources. Sources of information consist of mass media, health personnel, family members, friends, traditional birth attendants, village health volunteers, and mother and child health handbook. The satisfaction level was divided into three groups: high satisfaction, moderate satisfaction and poor satisfaction.

Table 14 Association between enabling resources and the utilization of antenatal care services

Enabling resources	Utilization of antenatal care services				χ^2	P value
	Adequate		Inadequate			
	n	%	n	%		
Accessibility and availability					**16.00**	**<.001**
Difficult access	12	34.29	23	65.71		
Easy access	89	71.20	36	28.80		
Waiting time					**2.02**	**0.155**
Long time	23	74.19	8	25.81		
Short time	78	60.47	51	39.53		
Information acquired					**20.90**	**<.001**
Less	15	38.46	24	61.54		
Fair	60	64.52	33	35.48		
Enough	26	92.86	2	7.14		
Satisfaction level on antenatal care services					**22.44**	**< .001**
Poor	31	88.57	4	11.43		
Fair	60	63.83	34	36.17		
High	10	32.26	21	67.74		

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Concerning enabling resources, Table 14 shows that there was significant association between accessibility and availability of services, information acquired and satisfaction with the utilization of antenatal care services except waiting time.

With regard to accessibility and availability of services, pregnant women with difficult access had higher percentage (65.71%) of inadequate utilization compared to those who had easy access (28.80%). Surprisingly, pregnant women who waited long time for the antenatal care services had lower percentage (25.81%) of inadequate utilization compared to those who waited for short time (39.53%). However, this association was not found to be significant. Pregnant women who obtain enough information about antenatal care services had lower percentage of inadequate utilization compared to fair and less. Although, pregnant women who inadequately utilized ANC services had higher percentage (67.74%) among high satisfaction group compared to those who had fair or poor satisfaction; statistically association with utilization of antenatal care services was significant.

Table C-3 in appendix shows that sources of information: mass media, health personnel, traditional birth attendant, and mother and child health handbook were significantly associated with the utilization of antenatal care; whereas family members and friends were not associated with utilization of antenatal care. Most common sources of information were health personnel, family members and friends.

4.7 Relationship between Need Factors and the Utilization of Antenatal Care Services

Table 15 below shows that intention of pregnancy and husband's concerns were significantly associated with adequacy of antenatal care utilization but there was no significant association between parity and utilization of antenatal care services.

In regard to intention of pregnancy, pregnant women with unwanted pregnancy had higher percentage (75%) of inadequate utilization compared to wanted pregnancy. The pregnant women who had no husband's concern had higher

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percentage (63.64%) of inadequate utilization compared to those with husband's concern.

Table 15 Association between need factors and the utilization of antenatal care services

Need Factors	Utilization of antenatal care services				χ^2	P value
	Adequate		Inadequate			
	n	%	n	%		
Parity					-	**0.101***
Normal	99	64.71	54	35.29		
High risk	2	28.57	5	71.43		
Intention of pregnancy					**21.19**	**<.001**
Wanted	94	71.21	38	28.79		
Unwanted	7	25.00	21	75.00		
Husband's concern					**18.67**	**<.001**
Yes	85	73.28	31	26.72		
No	16	36.36	28	63.64		

* Fishers exact test

Type of last delivery and complication during last delivery were tested especially for primiparous, multiparous and grandparous. Nulliparous (102 of pregnant women) were excluded from the total respondents. The result of delivery and complication during last pregnancy was detected in Table 16.

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Table 16 Association between last delivery and complication during last pregnancy with the utilization of antenatal care among pregnant women

Need Factors	Utilization of antenatal care services				χ^2	P value
	Adequate		Inadequate			
	n	%	n	%		
Type of last delivery					**4.44**	**0.035**
Caesarean section	10	83.33	2	16.67		
Normal	46	51.11	44	48.89		
Health problems during previous pregnancy*						
Hypertension					**-**	**1.000****
Yes	2	66.67	1	3.33		
No	54	54.55	45	45.45		
Edema					**-**	**0.687****
Yes	4	66.67	2	33.33		
No	52	54.17	44	45.83		
Anaemia					**-**	**0.218****
Yes	5	83.33	1	16.67		
No	51	53.13	45	46.88		
Others					-	1.000**
Yes	3	60.00	2	40.00		
No	53	54.64	44	45.36		
Complication during previous pregnancy*						
Abortion					**0.02**	**0.895**
Yes	8	53.33	7	46.67		
No	48	55.17	39	44.38		

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Table 16 Association between last delivery and complication during last pregnancy with the utilization of antenatal care among pregnant women (cont.)

Need Factors	Utilization of antenatal care services				χ^2	P value
	n	%	n	%		
Post partum hemorrhage					-	**0.200****
Yes	0	0	2	100		
No	56	56.00	44	44.00		
Infection					-	**1.000****
Yes	1	100	0	0		
No	55	54.46	46	45.54		
Pre eklampsia/eklampsia					-	**1.000****
Yes	3	60.00	2	40.00		
No	53	54.64	44	45.36		

* Multiple answers
** Fishers exact test

Tables 16 showed pregnant women with normal deliveries at last pregnancy had higher percentage (48.89%) of inadequate utilization compared to those with caesarean section. There was significant association between type of last delivery and utilization of antenatal care services. (P-value=0.035)

Regarding health problem during previous pregnancy, pregnant women with no health problems during previous pregnancy had higher percentage of inadequate ANC utilization compared to those with health problems. Concerning complication during previous pregnancy, the pregnant women who had abortion and post partum haemorrhage had higher percentage compared to with others; but the pregnant women who did not have infection and pre eklampsia/eklampsia had higher percentage compared to others.

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However, there was no significant association between health problems and complications during previous pregnancy with utilization of antenatal care services.

4.8 Significant Predictors for the Antenatal Care Utilization

The significant factors from the Chi-square test were further tested by multiple logistic regression to determine which factor can be significant predictors for utilization of antenatal care services. The outcome variable used in the logistic regression was classified into adequate (visiting the ANC services based on guideline: one time at 1st trimester and one time at 2nd trimester, coded one) and inadequate (visiting the ANC services not based on standard, coded zero). For each independent variable, the category was found to be at lowest risk for inadequate ANC utilization in descriptive analyses selected as the referent group.

Bi-variate analyses were conducted to investigate the relationship between each of risk factor and outcomes. Variables with p-value from bi-variate analysis equal to or less than 0.05 were considered in the stage of the model building process. In order to find out the strength of relationship between dependent and independent variables, they were regrouped into two groups. Education level was regrouped into primary school and secondary school where illiterate, primary and secondary schools were classified as primary school group; high school and university were determined as secondary schools. Occupations were classified into non-government and government employee, family income as low and high. Information was divided into two groups: less and enough. The level of satisfaction was classified into poor and high. Forward selection technique was used in the model building process. The results of full models analysis were reported in Table 17.

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Table 17 Adjusted odds ratios from the full model of multiple logistic regression

Predictors	Adjusted OR	95% CI for OR		P- value
		Lower	Upper	
Education level of respondents				
Primary school	1.988	.740	5.344	.173
Secondary school	1.00			
Education level of husbands'				
Primary school	1.276			
Secondary school	1.00	.410	3.974	.674
Occupation of respondents				
Non government employee	1.00			
Government employee	3.118	.791	12.287	.104
Occupation of husbands'				
Non Government employee	1.00			
Government employee	1.179	.332	4.188	.799
Family income				
Low	3.557	.561	22.537	.178
High	1.00			
Knowledge of antenatal care	1.062	.846	1.332	.606
Accessibility and availability				
Easy access	1.00			
Difficult access	2.097	.762	5.772	.152
Information acquired				
Less	6.470	1.287	32.534	.023
Enough	1.00			
Satisfaction of antenatal care services				
Poor	6.982	1.783	27.346	.005
High	1.00			
Intention of pregnancy				
Wanted	1.00			
Unwanted	2.266	.509	10.084	.283

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Table 17 Adjusted odds ratios from the full model of multiple logistic regression (cont.)

Predictors	Adjusted OR	95% CI for OR		P- value
		Lower	Upper	
Husband's concern				
Yes	1.00			
No	2.129	.602	7.527	.241
Last delivery by caesarean				
Yes	.157	.019	1.271	.083
No	1.00			

The researcher assessed the relative importance of independent variables in explaining the adequacy of antenatal care utilization using forward multiple logistic regression analysis. Table 18 presents the reduced multivariate logistic regression model.

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Table 18 Adjusted odds ratio from multiple logistic regression of antenatal care utilization services by selected determinants

Predictors	Adjusted OR	95% CI for OR Lower	Upper	P Value
Education of respondents				
Primary school	3.201	1.352	7.583	.008**
Secondary school	1.00			
Occupation of respondents				
Non government employee	1.00			
Government employee	4.771	1.358	16.768	.015*
Information acquired				
Less	7.476	1.540	36.288	.013*
Enough	1.00			
Satisfaction of antenatal care services				
Poor	4.603	1.363	15.547	.014*
High	1.00			
Intention of pregnancy				
Wanted	1.00			
Unwanted	4.907	1.612	14.941	.005**

*** p< .05 **p< .01**

Table 18 shows the final model. Five significant variables were found unwanted pregnancy (OR=4.907, 95% CI=1.612-14.941), primary school respondents (OR=3.201, 95% CI=1.352-7.583), less information acquired (OR=7.476, 95% CI=1.540-36.288), poor satisfaction (OR=4.603, 95% CI=1.363-15.547), and government employee (OR=4.771, 95% CI =1.358-16.768).

It was concluded that after adjusting other factors, pregnant women who acquired less information from health care providers were nearly 7.5 times more likely to inadequately utilize antenatal care services compared to those who acquired enough information. Pregnant women who had unwanted pregnancy were almost

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5 times more likely to inadequately utilize antenatal care services compared to those who wanted pregnancy. While the pregnant women with primary school were 3.2 times more likely to inadequately utilize antenatal care services compared to those with secondary school.

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CHAPTER 5
DISCUSSION

The cross-sectional study was conducted to explore the factors related to the utilization of antenatal care among pregnant women at health centers in Aceh Besar District, Nanggroe Aceh Darussalam Province, Indonesia. The questionnaire comprised of 50 structured questions concerning predisposing factors, enabling resources and need factors of pregnant women who visited antenatal care services at the health centers. Utilization of antenatal care was the dependent variable of this study. Although there are many factors that are related to the utilization of antenatal care, but in this study focused on some selected factors. In this chapter the following topics were discussed as follows:

1. Methodological concern
2. Predisposing characteristics
3. Enabling resources
4. Need factors

5.1 Methodological Concern

This study was conducted at five health centers during office working hours so that the respondents might be reluctant to express their true opinions and feelings toward the antenatal care services at health centers because they might be afraid of unfavorable services in the future. The structured questionnaire was designed in order to reduce the hesitation of answering their true opinions and time saving as well. The advantages of interview were: any misunderstanding or confusion about some questions was given chance to clarify and missing data were minimized. Appropriate interviewers were selected and trained well. In this study, staffs providing the services at health centers were avoided because their personalities and recognition could influence the respondents.

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Four midwives who work at another health centers were selected to be trained to assist the researcher in the process of data collection in order to minimize bias that could occur because of the character of interviewers. Selected monitoring was done during the process of data collection with the intention that the mistakes or incomplete questionnaire could be corrected in time. Multistage cluster sampling was performed to select the pregnant women at health centers who utilized the antenatal care services.

5.2 Utilization of Antenatal Care Services

The utilization of antenatal care services were measured by the visits of pregnant women for ANC services 4 times or more as per the guideline of the Ministry of Health Indonesia. The new approach to ANC emphasizes the quality of care rather than the quantity. For normal pregnancies, WHO recommends only four antenatal visits. The major goal of focused antenatal care is to help women maintain normal pregnancies through identification of pre-existing health conditions, early detection of complications arising during the pregnancy, health promotion and disease prevention, and birth preparedness and complication readiness planning (19).

The result of this study revealed 63.13 percent of the pregnant women utilized adequately and 36.88 percent of pregnant women utilized inadequately antenatal care services at health centers. Based on Indonesia Demographic and Health Survey (IDHS) in 1994, 82 percent of pregnant women received antenatal care and 61 percent received antenatal care at least four times (13). On the other hand, the study was conducted by Hady found 66.9% and 95.9% of mothers in urban and rural areas have registered at the local health centers. It was also found that 9.7% and 2.6% of urban and rural mothers never received antenatal care. In urban areas, the main causes for not seeking antenatal care included mothers' belief that pregnancy is a normal event, and there is no need for care (41).

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5.3 Predisposing Characteristics

The result showed that all predisposing characteristics, except maternal age were significantly associated with the utilization of antenatal care services.

5.3.1 Maternal Age

There was no association between maternal age and utilization of antenatal care services at health centers. In this study, low information about risk factors influenced utilization of the antenatal care services.

High risk means a mother or child with a condition, which significantly increases the probability of disease, injury, death, or other adverse health related problems. Every pregnancy has some risks, but there are more dangers to health of mother and fetus with a high risk pregnancy. The causes can be conditions including pregnancy with age less than 20 years and age over 35 years. Older women also have a higher chance of having a baby with a genetic abnormality, such as Down's syndrome, Edward's syndrome or Patau's syndrome. Figures for England and Wales showed that chance of having a baby with a genetic abnormality rises from 1 in 500 between the ages of 35-39, 1 in 250 between 40-44, up to approximately 1 in 70 if ages of 45 or over (42).

5.3.2 Education of the Respondents and Husbands'

Education of mother and husband were considered to have greater awareness of the existence of maternal health care services and benefits in using services, also likely to have better knowledge and information on modern medical treatment, and have greater capacity to recognize specific illness. As education empowers women, they will have greater confidence and capabilities to make decisions to use modern health care services for themselves and for their children (43).

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There was significant association between education of respondents and their husband with the utilization of antenatal care services (p-value was <.001) and further tested by multiple logistic regression (OR=3.201, 95% CI = 1.352-7.583). Pregnant women who had primary school were nearly 5 times more likely to utilize antenatal care services inadequately compared to those with secondary school after adjusting other factors.

Chandiok reported that literacy of women and their husbands showed a significant association with respect to utilization of antenatal care services, indicating the impact of education on awareness and health status with utilization by the population (44).

5.3.3 Occupation of Respondents and Husbands'

Significant association was found between occupation of the pregnant women and their husband with the utilization of antenatal care services (p-value=0.001). The pregnant women and their husbands who were government employees had the lowest percentage of inadequate ANC utilization compared to those with other employment.

Working women were expected to have greater control over resources in the household. They are likely to have greater knowledge about pregnancy and childbirth due to greater freedom of movement outside the household and likely to seek information on services available for pregnancy care during their work.

The previous study by Paras reported the antenatal care received was significantly lower among illiterate women and among those whose husbands were illiterate and unskilled laborers (45).

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5.3.4 Family Income

The statistical test revealed that significant association between family income and utilization of antenatal care services. Pregnant women with high family income had the lowest percentage of inadequate utilization of ANC services compared to those with lower family income. In this study, Low family income was determined below Rp. 800,000. It was slightly equivalent with the minimum wage for regional Nanggroe Aceh Darussalam Province in 2005, where low income was 620,000 rupiah = $ 65 (46).

The WHO estimated 60% of birth in low income countries occur outside a health facility with 47% assisted by traditional birth attendants, family members or without any assistance (47). Study in Tamil Nadu reported monthly family income has exhibited positive influence on postnatal check-ups. Use of antenatal care services has a significant and positive effect on their place of delivery (48). Analysis of Hady's study showed that mothers who attended private clinics for care were more likely to be of a high socioeconomic status. On the other hand, mothers who never received antenatal care were more likely to be of low socio economic status and living a distance away from a health center (41).

5.3.5 Knowledge on Antenatal Care Services

The knowledge was significantly associated with utilization of antenatal care services. WHO recommended three interventions examined under maternal mortality and morbidity that showed evidence of the following reproductive health outcomes: firstly, increase in use of skilled pregnancy care, secondly greater knowledge of warning signs in pregnancy and the thirdly was better nutrition. Besides, strategic direction to achieve universal coverage; essential interventions will be ensure skilled care at every birth, bridge programmatic gaps, review lessons learned, experiences gained, gather evidence and manage knowledge (49).

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Maternal and Child Health Study in 2001 by the National Institute of Health Research and Development, Ministry of Health of Republic Indonesia recommended that the health education should be added to the mass media for motivating the pregnant women to ANC service, improving their knowledge and attitude on ANC (50).

The study conducted by Chandiok considers awareness of care during pregnancy and knowledge of pregnancy related complications were associated with increased utilization of antenatal care services. However, knowledge of serious complications was found to be lacking even in women who availed of the care (44).

5.4 Enabling Resources

The result of this study found all the variables of enabling resources have significant association with utilization of antenatal care services, except waiting time. Some sources of information acquired indicated significant association with utilization of antenatal care services (Table C-3 in appendix).

5.4.1 Accessibility and Availability of Services

There was significant association between accessibility and availability of services with utilization of antenatal care services (p-value shows <.001). The important strategies to reduce maternal deaths are to access health care and the quality of care. In the study area, access of antenatal care services was not difficult as the health centers and health care providers were available in the vicinity. One professional midwife was available in most of the villages.

The study conducted by Acharya in rural area evaluated the relative importance of access and quality on the utilization of preventive health services in the western and middle-western hill region of Nepal. The adjusted odds ratio of using some forms of antenatal care were 6.6 times higher in the catchment areas of high-quality posts than in areas served by low-quality posts (51). Bissau reported in

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longitudinal and prospective study, maternal mortality increased as distance from the regional hospital increased. The distance to an emergency obstetric care facility is an important factor in determining the outcome of complicated deliveries (52). European journal of epidemiology also reported antenatal care was positively associated with living within 10 km of the Health Centre (53).

5.4.2 Waiting Time

There was no significant association between waiting time and utilization of antenatal care services. The result revealed, pregnant women who waited long time for the antenatal care services had lower percentage of inadequate utilization compared to those pregnant women who waited for short time. In the fact, waiting time was not a matter in utilization of antenatal care services at the health centers, as three to five pregnant women visit the health centers every day. While four to five midwives were available to take care pregnant women in each health center.

An evaluation survey in India reported that there was lack of awareness or interest among few slum dwellers of Delhi for maternal health care in spite of the availability of the health facility in the vicinity. Another study of urban slums identified prolonged waiting time, heavy workload at home and long distance as reasons for non-utilization (45).

5.4.3 Information Acquired of Antenatal Care

The study result revealed less information was the higher percentage of inadequate utilization compared those who gain fair and enough information. Significant association between information acquired and utilization of antenatal care services was detected (p-value <.001) by Chi-square test and the result of logistic regression (OR=7.476, 95% CI = 1.540-36.288). It was concluded after adjusting other factors, pregnant women who had less information from health care providers acquired were nearly 7.5 times more likely to inadequately utilize the antenatal care compared to those who gained enough information.

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There are seven items in the guideline based on Ministry of Health of Republic Indonesia for antenatal care services including advices to pregnant women and family about healthy lifestyle. Nevertheless, the activities on antenatal care were not done as per the guideline. They implemented five items of antenatal care services without emphasis on health promotion and laboratory examination at health centers.

The large volume of information needs in early pregnancy (prior to 12 weeks) with an opportunity to discuss issues and ask questions; offer verbal information supported by written information (on topics such as diet and lifestyle considerations, pregnancy care services available, maternity benefits and sufficient information to enable informed decision making about screening tests).

Source of information through mass media, health personnel, traditional birth attendant, and mother and child health handbook were significantly associated with the utilization of antenatal care; whereas family members and friends were not associated with utilization of antenatal care. Around 90 percent of respondents got the MCH handbook but 61.25 percent of them actually read the MCH handbook.

Mukhlis studied about factors related to pregnant women who risk delivery at home analyzed that there was significant relationship between home deliveries and lack of counseling and inadequate utilization of antenatal care. He concluded that pregnant women with risk factors who delivered at home received inadequate utilization of antenatal care and no counseling associated with any pregnancy risk (54).

5.4.4 Satisfaction of Antenatal Care Services

The result of this study revealed significant association between satisfaction and utilization of antenatal care by Chi-square (p-value <.001) and multiple logistic regression (OR=4.603, 95% CI=1.363-15.547). However after adjusting other factors, pregnant women who had poor satisfaction with antenatal care services were

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4.6 times more likely to inadequately utilize the antenatal care compared to those who had high satisfaction.

Nanggroe Aceh Darussalam Province is a conflict area in Indonesia, in 2001 government implemented policy to provide free health services for community at health centers and hospitals. Because of free service, sometimes quality of care was compromised and community has no choice for complain.

Level of satisfaction with antenatal care services is a key measure of the quality of care. Jain A & Bruce J, 1989 were defined the quality of care as "the way individuals & clients are treated by the system providing services". The vast majority of women in shared care prefer that their local family physician provide as much maternity care as possible and the physicians find the care enjoyable and satisfying. Most women believe that their family physician is competent enough to provide prenatal care and their confidence is an important determinant in the success of both improved outcomes and decreased costs (27).

5.5 Need Factors

The results revealed there was significant relationship between intention of pregnancy, husband's concern and type of last delivery with utilization of antenatal care services, and there were no significant association between parity, health problems during current and last pregnancy, and complication during last pregnancy with utilization of antenatal care services.

5.5.1 Parity

Parity is defined as the number of times that women give birth to a baby with a gestational age of 24 weeks or more, regardless of whether the child was born alive or was stillborn. Women tend to give greater attention to their first pregnancy, as they are inexperienced with pregnancy and after subsequence pregnancy more likely to give less attention to seeking maternal health care services. Surprisingly in this study,

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there was no significant association between parity and utilization of antenatal care services since p-value was 1.01.

A study conducted by Nasser was not supported this finding; he found significant relationship of age, parity and education with their current antenatal care and delivery practices (55). The studied by Cooke reported midwifery support during the postnatal period needs to be improved for both primiparous and multiparous women. The majority of multiparous women would like to have support from midwives related to baby care, physical and emotional health (56).

5.5.2 Type of Last Delivery

Caesarean section is the delivery of a baby through an incision into the abdominal wall and uterus (Enkin et al. 2000). The most common indications for caesarean section are previous caesarean section, dystocia, malpresentation and non-reassuring fetal status (57).

The result of this study showed caesarean section group was lowest percentage to attained inadequate utilization compared to those normal groups. There was significant association between type of last delivery and utilization of antenatal care services.

This study was supported by Trinh and Rubin's research. They found women who have had a previous caesarean delivery are aware of the risk of pregnancy complications and therefore more likely to seek ANC early (14).

5.5.3 Complication during Current and Previous Pregnancy

Prolonged labor and bleeding were the most common morbidity symptoms occurring during delivery. WHO has recommended four strategic interventions or "four pillars" for safe motherhood including clean/safe delivery and emergency obstetric care: evidence has shown that the five direct obstetric cause of death account

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for nearly 80 % of maternal deaths, that can be prevented through actions that are effective and affordable in developing countries; most of the complications related to pregnancy and childbirth that contribute to high maternal and newborn mortality are hemorrhage, eclampsia and sepsis; thus, the presence of skilled attendants is crucial at every delivery, with appropriate referral and available emergency obstetric care available at the nearest facility in case of emergency for mothers and newborns (58).

Regarding health problem during previous pregnancy, the higher percentage of inadequate utilization was found among the pregnant women who had no problem compared to those who had hypertension, edema, anemia and others. Very few of them had medical problem and complication during previous pregnancy. In conclusion, there was no significant association between health problem and complication during previous pregnancy with utilization of antenatal care services.

There was a few number of the sample with below 36 weeks of pregnancy in this study might influence the relationship between complications of pregnancy and utilization of antenatal care services. The complications occur after 36 weeks and may become life-threatening.

Previous study by Trinh reported anemia prevalence was very high percentages among pregnant women during the last trimester, minority ethnic women, low-educated and older women. Women being pregnant during the third trimester increased anemia 2.2 times compared to being pregnant during the second trimester. Women aged 30 or older were 1.7 times at risk of having anemia compared to women aged 20-29 (59).

5.5.4 Intention of Pregnancy

Antenatal care is the most important method to detect the pregnancy problems in the early period to prevent unwanted outcomes of pregnancy. But the antenatal care utilization rate is still low due to the many factors needed to be examined (11).

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Intention of pregnancy was significantly associated with utilization of antenatal care. Pregnant women with unwanted pregnancy had higher percentage of inadequate utilization compared to wanted pregnancy. Unwanted pregnancy is common with its attendant risks of induced abortion and obstetric complications.

Previous study about unintended pregnancy revealed that ended in birth was reported intention of pregnancy and socio demographic variables were significantly associated with unintended pregnancy. Obstetric problems like pregnancy-induced hypertension, antepartum hemorrhage, and previous cesarean section were observed to be more frequent among antenatal clinic attendees than non-attendees (28).

5.5.5 Husband's Concern about Pregnancy

Significant association between husband's concern and adequacy of antenatal care utilization was detected since p-value was <.001. The pregnant women who had no husband's concern had higher percentage of inadequate utilization compared to those with husband's concern.

Husband is an important person in the family in decision making. Indonesia was implementing husband's preparedness or "suami siaga" program to emphasize the husband's concern about pregnancy. Some interventions for safe motherhood accommodate in order to prevent the four delays that can lead to maternal death: delays in recognizing danger signs, in deciding to seek care, in reaching care, and in receiving care at health facilities.

The study by Rafiqul in Bangladesh reported a husband's concern about pregnancy complications, showed a significant and positive impact on the utilization of health care services, which is very important for rural women when they are dependent on their spouses (60).

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CHAPTER 6
CONCLUSION AND RECOMMENDATION

6.1. Conclusion

Maternal mortality is an important measure of women's health and indicative of the performance of health care systems. The World Health Organization (WHO) has estimated the total of 536,000 maternal deaths worldwide in 2005, 99% accounted for developing countries. The major causes of maternal deaths were severe bleeding/hemorrhage, infections, eclampsia and obstructed labor, complications of abortion, other direct causes, and indirect causes. WHO also has summarized a major factor underlying the direct causes of maternal deaths operated at several levels that is lack of access and utilization of essential obstetric service crucial factor contributing to maternal deaths.

Antenatal care is a key strategy for reducing maternal morbidity and mortality directly through detection and treatment of pregnancy related illness, or indirectly through detection of women at increased risk of complications of delivery and ensuring that they deliver in suitably equipped facility. It is comprehensive medical care provided during pregnancy, labor and delivery and postpartum. The aims of antenatal care are to prevent, identify and to ameliorate maternal or fetal abnormalities that can adversely affect pregnancy outcome. Antenatal care also provides an opportunity to educate the woman about pregnancy, labor, delivery, and infant care so that she can successfully adapt to the pregnancy and the challenges of raising a family.

This study objective was to identify the utilization of antenatal care services and its related factors among pregnant women. The dependent variable of interest was the utilization of antenatal care services. It was concerned on adequate and inadequate

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utilization. Independent variables were predisposing characteristics such as maternal age, education of respondents and husbands', occupation of respondents and husbands', family income and knowledge on antenatal care; enabling resources including accessibility and availability of services, waiting time, information acquired of antenatal care and satisfaction of antenatal care services; and the need factors such as parity, type of last delivery, complication during current and previous pregnancy, and intention of pregnancy.

Structured questionnaire was used as a study instrument for data collection. There were four parts in the questionnaires: predisposing characteristics, enabling resources, need factors and utilization of antenatal care. Kruder-Richardson formula 20 (KR 20) was applied for the knowledge test and Cronbanch's alpha coefficient was applied for satisfaction, and came up with 0.68 and 0.80 for knowledge and satisfaction respectively. As the KR 20 for knowledge section was not high, the questionnaire was modified specifically question number fifteenth of the section in order to increase the level of reliability. The Cronbach's alpha coefficient for satisfaction section was high, the questionnaire was modified especially question number thirty five and number thirty nine in order to make easier and clearer.

The number of respondents was calculated by using the proportion with replacement formula and multi-stage cluster employed to select the health centers and respondents. Four midwives and researcher were the data collectors for this study and the data collection was performed for three weeks during January, 7th to 28th, 2008. There were 160 pregnant women participated in this study, and the data was analyzed by MINITAB version 13. The results were presented by using frequency, percentage, mean, median, standard deviation, first quartile, third quartile and quartile deviation. Chi-square test was used to find out the association between dependent and independent variables, and logistic regression was performed to identify the strength of relationship among variables.

The result of bi-variate analysis revealed that all predisposing characteristics, except maternal age were significantly associated with the utilization of antenatal

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care. There was significant association between all variable of enabling resources except waiting time with the utilization of antenatal care services.

Information acquired may have some effect on the adequate and inadequate of antenatal care utilization. There were significant associated between information about visiting the ANC services under the guideline, taking drug, nutritional advice, safer sex, new born care and exclusive breast feeding, breast care and utilization of antenatal care services. The lower percentages of information acquired were found in safer sex (28.75%), and breast care (33.75%) of total respondents.

As regard to the source of information, mass media, health personnel, traditional birth attendant, and mother and child health handbook were significantly associated with the utilization of antenatal care; whereas family members and friends were not associated with utilization of antenatal care.

Based on need factors, the result showed the significant association between intention of pregnancy, husband's concern, type of last delivery and utilization of antenatal care services. There was no association between parity, complication during current and previous pregnancy with utilization of antenatal care services.

After adjusting for other factors of the antenatal care services utilization in the model, five significant variables were selected: unwanted of pregnancy (OR=4.907, 95% CI=1.612-14.941), primary school of respondent's education (OR=3.201, 95% CI = 1.352-7.583), less information acquired (OR=7.476, 95% CI = 1.540-36.288), poor satisfaction of antenatal care services (OR=4.603, 95% CI=1.363-15.547), and government employee (OR=4.771, 95% CI =1.358-16.768).

It was concluded that after adjusting other factors, pregnant women who had acquired less information from health care providers were nearly 7.5 times more likely to inadequately utilize the antenatal care compared to those who acquired enough information. Pregnant women who had unwanted pregnancies were 4.9 times more likely to inadequately utilize the antenatal care compared to those who wanted

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pregnancy. And pregnant women with primary school were 3.2 times more likely to have inadequate utilization of antenatal care compared to those with secondary school.

6.2 Recommendations

6.2.1 Recommendation for Program Implication

Based on the findings of the study, it is recommended more interventions concerning about utilization of antenatal care service at health centers, there were five significant variables related to the utilization of antenatal care: intention of pregnancy, education level of respondents, information acquired of antenatal care, satisfaction with antenatal care services, and occupation of respondents. It could not be emphasized beyond education level and occupation.

Recommendation proposed for District Health Office of Aceh Besar:

- Health promotion and prevention should be taken into consideration to create an awareness of pregnancy risk.
- Interpersonal communication and counseling training should be provided for midwives as main health providers and implementers of the MCH program.
- Mass media should play important role as sources of information to increase knowledge of pregnant women, continuing information through mass media is felt necessary.
- Encourage to develop the utilization of MCH Handbook as essential tool for improving the quality of antenatal care.

Recommendations proposed for health centers:

- Implement the standard operational procedure as per guidelines of antenatal care services to ascertain key performance indicators to improve quality of service and satisfy pregnant women.
- Family planning program should be improved to prevent unwanted pregnancy.

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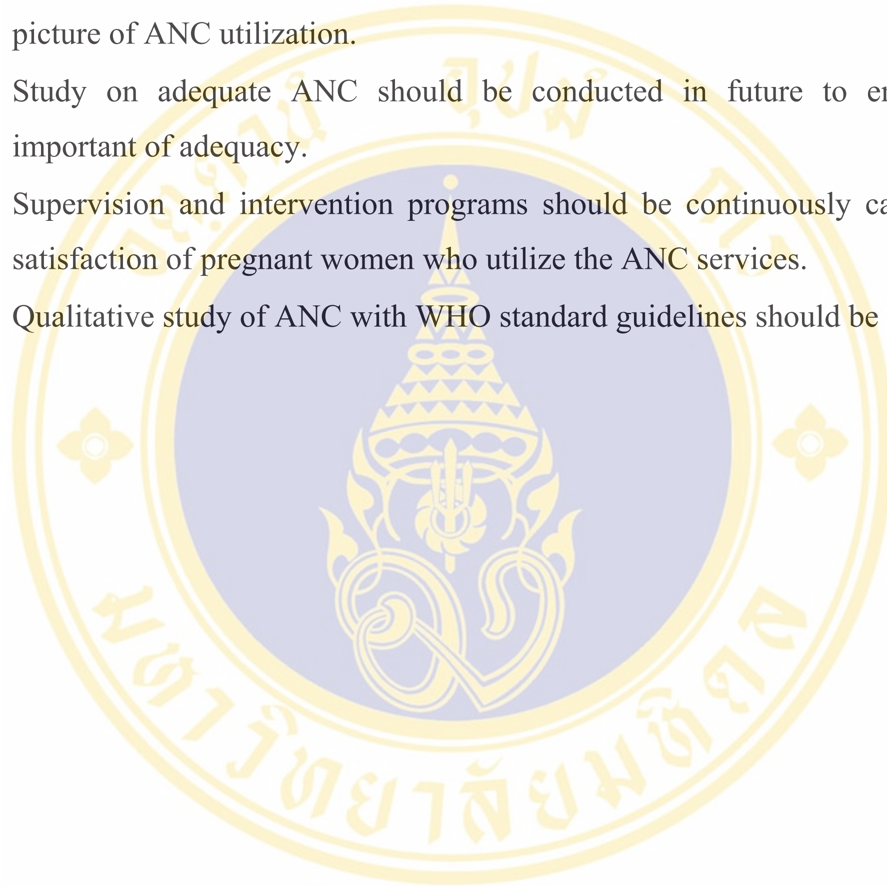
6.2.2 Recommendation for Further Research

- Complications of pregnancy usually occur during the third trimester. Therefore data collection should be conducted immediately after delivery to get a complete picture of ANC utilization.
- Study on adequate ANC should be conducted in future to emphasize the important of adequacy.
- Supervision and intervention programs should be continuously carried out for satisfaction of pregnant women who utilize the ANC services.
- Qualitative study of ANC with WHO standard guidelines should be done.



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APPENDIX

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APPENDIX A
QUESTIONNAIRES

FACTORS RELATED TO THE UTILIZATION OF ANTENATAL CARE SERVICES AMONG PREGNANT WOMEN IN ACEH BESAR DISTRICT, NANGGROE ACEH DARUSSALAM PROVINCE, INDONESIA

The questionnaire is constructed for assessing your utilization of antenatal care services provided by health personnel at your health centre. Your response will be kept confidential and not exposed to other purpose. Your cooperation in completing this questionnaire is greatly appreciated.

ID. No: ☐☐☐

Date: ………/............/...................

Address of respondent:

……………………………………………………………………………

PART I. PREDISPOSING CHARACTERISTICS

1. Age ………………(years)

2. Mother's education level:

☐ 1. No education ☐ 2. Primary School
☐ 3. Secondary School ☐ 4. High School
☐ 5. Academy ☐ 6. University

3. Husband's education level:

☐ 1. No education ☐ 2. Primary School
☐ 3. Secondary School ☐ 4. High School
☐ 5. Academy ☐ 6. University

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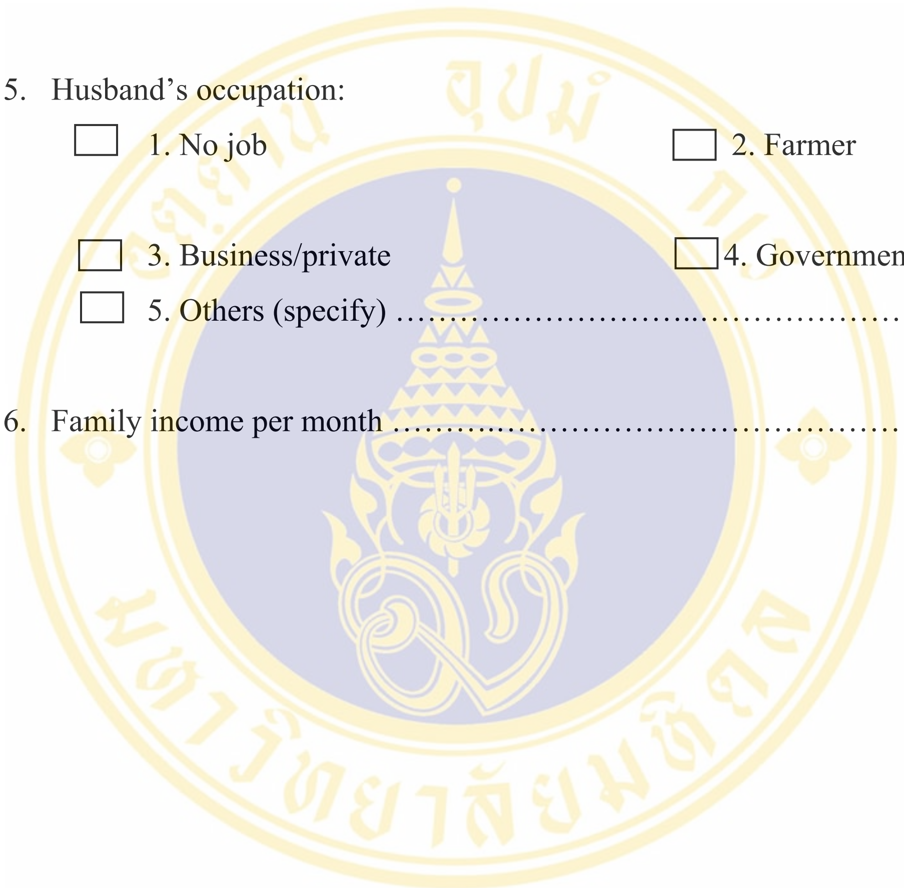
4. Mother's occupation:

☐ 1. House wife ☐ 2. Farmer

☐ 3. Business/private ☐ 4. Government employee

☐ 5. Others (specify) ………………………..……………………



5. Husband's occupation:

☐ 1. No job ☐ 2. Farmer

☐ 3. Business/private ☐ 4. Government employee

☐ 5. Others (specify) ………………………..……………………

6. Family income per month …………………………………………………(rupiah)

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Knowledge of pregnant women about ANC services

This part includes 12 statements according to your understanding. Please select only the appropriate answer: T = True, F = False and DK = Do not know.

No	STATEMENT	T	F	DK
7	Prenatal care is the health care women receive throughout pregnancy starting as soon as the woman knows she is pregnant			
8	Antenatal care is comprehensive medical care provided during pregnancy can be provided by doctor, midwife or other health care professional			
9	The objective of ANC service is conducted just to detect pregnancy			
10	Pregnant women should attend ANC services at least 2 time during pregnancy			
11	Pregnant women should visit ANC services at the first time when they miss menstrual			
12	Prenatal care consists of regular examinations to check the expectant mother's blood pressure, weight, fetal heartbeat, tetanus immunization, iron and folic supplementary			
13	Risk assessment during ANC should be done at the first time service			
14	Tetanus toxoid vaccination during pregnancy only prevent mother from tetanus			
15	If pregnant woman does not feel fetal movement, she should visit ANC services as soon as possible			
16	Blood testing during ANC is necessary to assess anemia status of pregnant women			
17	ANC is inopportunity to inform pregnant women about the danger signs and symptoms			
18	Health education during antenatal period is also given due to enhance breastfeeding during lactation period			

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PART II. ENABLING FACTORS

Please answer the following questions by giving the sign (√) on the answer that close to your opinion.

No	Enabling Factors	Yes	No
	Accessibility and availability of services		
19	Distance from your residence to health centre is not far		
20	The health centre from your residence is easy to access		
21	Easy to find transportation to go to the health center		
22	The transportation to the health centre is convenient		
23	Travelling from residence to the health center does not take much time		
	Waiting time		
24	Waiting time for examination is not long		
25	Waiting time for treatment is not long		
26	Waiting time for medicine is not long		
	Information acquirement		
27	Enough information about visiting the ANC services		
28	Enough information about using the drug during pregnancy		
29	Enough information about health promotion and preventive:		
	- Personal hygiene		
	- Nutritional advice (foods and taboos)		
	- Safer sex		
	- Planning for place of birth		
	- Newborn care and exclusive breast-feeding		
	- Breast care		
	- Danger signs		
	- Family planning		
30	I believe the recommendation and suggesting from the health personnel		

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31. Source of information:

1. Mass media	☐ Yes	☐ No
2. Health Personnel	☐ Yes	☐ No
3. Family member	☐ Yes	☐ No
4. Friends	☐ Yes	☐ No
5. TBA	☐ Yes	☐ No
6. Health volunteers	☐ Yes	☐ No
7. Maternal and child handbook	☐ Yes	☐ No

Satisfaction with antenatal care services

Please answer the following questions by giving the sign (√) on the answer in the appropriate box to mark the correct answer of the questions:

5=Very Satisfied 4= Satisfied 3=Undecided 2= Unsatisfied 1=Very Unsatisfied

NO	SATISFACTION OF ANC SERVICES	Satisfaction Level				
		5	4	3	2	1
32	Willingness of health personnel at ANC clinic to help you when you have any health problem					
33	Knowledge of health personnel at ANC services are enough to help you to manage your pregnancy					
34	Satisfy with the environment of ANC clinic and comfortable when you received services					
35	Satisfy with courtesy of midwife at health centre when you received services					
36	Adequacy of equipment to conduct the ANC services					
37	Having proper referral system at ANC clinic to ensure that women with complications get essential treatment					

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Satisfaction with antenatal care services (Cont.)

NO	SATISFACTION OF ANC SERVICES	Satisfaction Level				
		5	4	3	2	1
38	Adequate information that you would acquire from the health personnel					
39	The services hour 08.00 – 12.00 is convenient					
40	Satisfied with the ANC services provided					

PART III NEED FACTORS

41. Frequency of pregnancy:

☐ 1. First, skip to question no. 45

☐ 2. More than first, specify ………………………..

42. Last delivery was by caesarean:

☐ 1. Yes ☐ 2. No

43. During previous pregnancy, did you have any diseases as follows (can answer more than one)

1. Hypertension ☐ 1. Yes ☐ 2. No
2. Edema ☐ 1. Yes ☐ 2. No
3. Anemia ☐ 1. Yes ☐ 2. No
4. Others (specify) ……………………………………………………………

44. Did you ever have any obstetric complications history as follows (can answer more than one)

1. Abortion ☐ 1. Yes ☐ 2. No
2. Post partum hemorrhagic ☐ 1. Yes ☐ 2. No
3. Infection ☐ 1. Yes ☐ 2. No
4. Pre eklampsia/ eklampsia ☐ 1. Yes ☐ 2. No
5. Fetal death ☐ 1. Yes ☐ 2. No

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6. Neonatal death ☐ 1. Yes ☐ 2. No
7. Others (specify) ……………………………………………………

45. Did you ever have any of following health problem during this pregnancy (can answer more than one)

1. Bleeding per vagina ☐ 1. Yes ☐ 2. No
2. Headache & Edema ☐ 1. Yes ☐ 2. No
3. Cramp ☐ 1. Yes ☐ 2. No
4. Hypertension ☐ 1. Yes ☐ 2. No
5. Morning sickness ☐ 1. Yes ☐ 2. No
6. Others (specify) ………………………………

46. Intention of this pregnancy:

☐ 1. Wanted ☐ 2. Unclear ☐ 3. Unwanted

47. Your husband is concerned about pregnancy

☐ 1. Yes ☐ 2. No

48. Has your husband ever kept your company to the health care center?

☐ 1. Yes ☐ 2. No

49. Has your husband helped you to do domestic work?

☐ 1. Yes ☐ 2. No

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PART IV. UTILIZATION OF ANTENATAL CARE SERVICES (From Record: MCH Handbook)

50. Number of Visits:

- 1st trimester : …………….. times
- 2nd trimester : ……………… times

Please say "thank you" to interviewee for their kind cooperation

Date:

Name of the Interviewer:

Signature of the interviewer:

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APPENDIX B
KUESIONER
FAKTOR-FAKTOR YANG BERHUBUNGAN DENGAN PEMANFAATAN ANTENATAL CARE ANTARA WANITA HAMIL DI KABUPATEN ACEH BESAR PROVINSI NANGGROE ACEH DARUSSALAM, INDONESIA

Kuesioner ini dipersiapkan hanya untuk penulisan tesis MPHM. Kuesioner ini dibuat untuk mengkaji pemanfaatan pelayanan antenatal yang disediakan oleh tenaga kesehatan di puskesmas. Jawaban anda akan dijaga kerahasiaannya dan tidak digunakan untuk maksud lain. Kesediaan anda untuk menjawab seluruh pertanyaan sangat kami hargai.

No. identitas: ☐☐☐

Tanggal: ……………/............./...................

Alamat Responden : ……………………………………………..

BAGIAN I. PREDISPOSISI

1. Umur …… ………………(tahun)

2. Tingkat Pendidikan Ibu:

☐ 1. Tidak Sekolah ☐ 2. SD
☐ 3. SMP ☐ 4. SMA
☐ 5. Akademi ☐ 6. Perguruan Tinggi

3. Tingkat Pendidikan Suami:

☐ 1. Tidak Sekolah ☐ 2. SD
☐ 3. SMP ☐ 4. SMA
☐ 5.Akademi ☐ 6. Perguruan Tinggi

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4. Pekerjaaan Ibu:

☐ 1. IRT ☐ 2. Petani

☐ 3. Swasta ☐ 4. PNS

☐ 5. Lainnya (sebutkan) ……………………..……………………

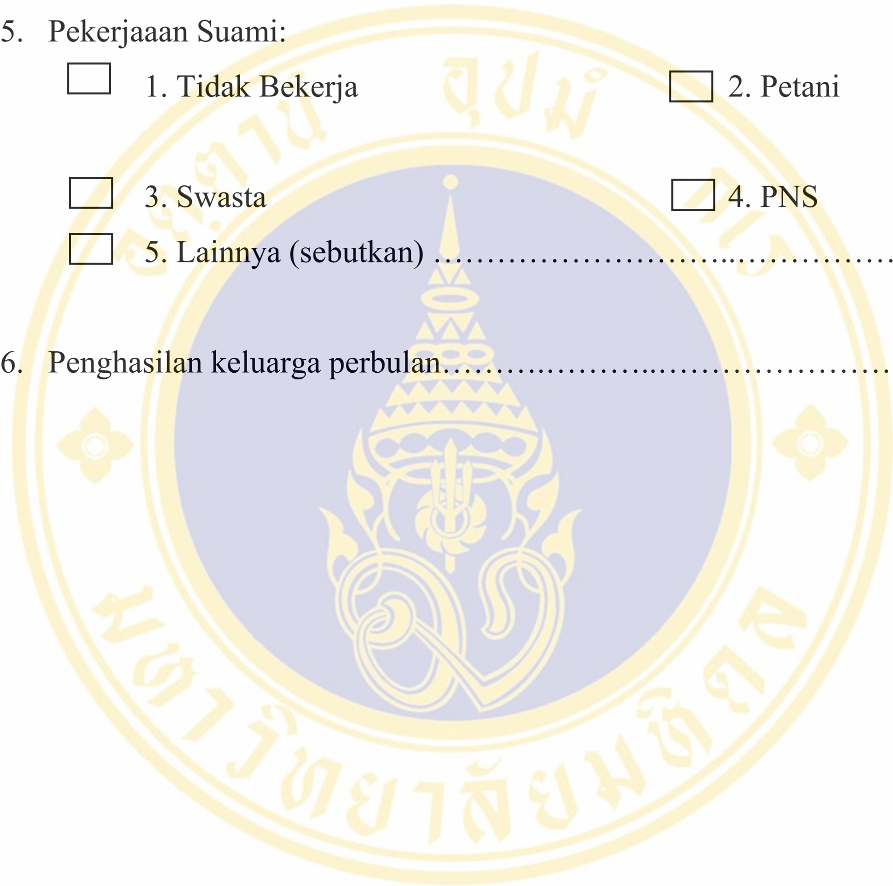
5. Pekerjaaan Suami:

☐ 1. Tidak Bekerja ☐ 2. Petani

☐ 3. Swasta ☐ 4. PNS

☐ 5. Lainnya (sebutkan) ……………………..……………………

6. Penghasilan keluarga perbulan…….………..…………………… (rupiah)



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Pengetahuan ibu terhadap pelayanan ANC.

Untuk pernyataan berikut, pilihlah jawaban yang menurut anda benar atau salah, jika anda tidak tahu maka beri tanda pada kolom tidak tahu.

B = Benar, S = Salah and TT = Tidak Tahu**.**

No	PERNYATAAN	B	S	TT
7	ANC merupakan perawatan ibu hamil selama kehamilannya			
8	Antenatal care adalah perawatan medis keseluruhan selama kehamilan yang disediakan oleh dokter, bidan atau tenaga kesehatan professional lainnya.			
9	Tujuan dari pelayanan ANC hanya untuk mendeteksi kehamilan.			
10	Wanita hamil sebaiknya mengunjungi pelayanan ANC minimal 2 kali selama kehamilannya.			
11	Wanita hamil sebaiknya mengunjungi pelayanan ANC pertama kali secepatnya setelah terlambat menstruasi.			
12	Pelayanan ANC terdiri dari menimbang BB dan TB, ukur TD, hitung detak jantung janin, pemberian imunisasi TT, pemberian Zat besi dan Asam Folat.			
13	Pengkajian resiko selama kehamilan ditetapkan pada pertama kali kunjungan.			
14	Imunisasi Tetanus toxoid selama kehamilan mencegah ibu dari penyakit tetanus			
15	Jika ibu tidak merasakan gerakan bayi, seharusnya ibu mengunjungi pelayanan ANC secepat mungkin			
16	Pemeriksaan darah selama ANC adalah untuk mengkaji status anemia pada ibu hamil			
17	ANC tidak memberi kesempatan untuk memberikan informasi mengenai tanda-tanda dan bahaya kehamilan			
18	Pendidikan kesehatan selama masa ANC diberikan juga untuk memperbesar kesempatan menyusui pada masa menyusui			

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BAGIAN II. FAKTOR ENABLING

Jawab pertanyaan berikut dengan memberikan tanda (√) pada jawaban yang paling tepat menurut anda.

No	Faktor Enabling	Ya	Tidak
	Kesediaan dan keterjangkauan pelayanan		
19	Jarak antara tempat tinggal dan puskesmas tidak jauh		
20	Puskesmas mudah dijangkau dari rumah		
21	Mudah mendapatkan transportasi untuk ke puskesmas		
22	Transportasi ke puskesmas nyaman		
23	Perjalanan dari rumah ke puskesmas tidak lama		
	Waktu Tunggu		
24	Waktu tunggu untuk pemeriksaan tidak lama		
25	Waktu tunggu untuk pelayanan/pengobatan tidak lama		
26	Waktu tunggu untuk mendapatkan obat tidak lama		
	Informasi yang diperoleh		
27	Cukup informasi tentang pelayanan ANC di puskesmas		
28	Cukup informasi tentang penggunaan obat selama kehamilan		
29	Cukup informasi tentang promosi kesehatan dan pencegahan penyakit:		
	- Kegiatan yang aman dilakukan		
	- Pemeliharaan kesehatan/kebersihan diri		
	- Nasehat gizi (makanan dan tabu)		
	- Sex yang aman		
	- Rencana tempat kelahiran		
	- Perawatan bayi baru lahir dan ASI ekslusif		
	- Perawatan payudara		
	- Tanda-tanda bahaya kehamilan		
	- Keluarga berencana		
30	Saya percaya akan rekomendasi dan saran dari petugas kesehatan		

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31. Sumber informasi:

1. Surat kabar	☐ Ya	☐ Tidak
2. Petugas kesehatan	☐ Ya	☐ Tidak
3. Anggota keluarga	☐ Ya	☐ Tidak
4. Teman	☐ Ya	☐ Tidak
5. Dukun bayi	☐ Ya	☐ Tidak
6. Kader	☐ Ya	☐ Tidak
7. Buku KIA	☐ Ya	☐ Tidak

Kepuasan akan pelayanan ANC

Silakan jawab pertanyaan berikut dengan memberikan tanda (√) pada kotak yang sesuai menurut anda:

5=Sangat Puas 4= Puas 3=Tidak Tahu 2= Tidak Puas 1= Sangat Tidak Puas

NO	KEPUASAN AKAN PELAYANAN ANC	Satisfaction Level				
		5	**4**	**3**	**2**	**1**
32	Kemauan petugas untuk membantu anda jika anda punya masalah					
33	Pengetahuan petugas cukup umtuk membantu anda untuk mengelola kehamilan anda					
34	Lingkungan dan kenyamanan pelayanan					
35	Keramahan petugas di puskesmas ketika memberi pelayanan					
36	Kecukupan peralatan untuk memberikan pelayanan ANC					
37	Puskesmas mempunyai system rujukan yang baik untuk menjamin ibu dengan komplikasi mendapatkan pengobatan yang sesuai					
38	Kecukupan informasi yang anda peroleh dari petugas					
39	Kenyamanan waktu pelayanan					
40	Puas dengan keseluruhan pelayanan ANC yang disediakan di puskesmas					

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PART III NEED FACTORS

41. Kehamilan ini merupakan kehamilan ke:

☐ 1, lanjut ke pertanyaan no 46 ☐ ≥ 2

42. Persalinan yang lalu dengan pembedahan (Caesar):

☐ 1. Ya ☐ 2. Tidak

43. Selama kehamilan yang lalu, adakah anda menderita penyakit berikut (jawaban boleh lebih dari satu)

1. Darah Tinggi	☐ 1. Ya	☐ 2. Tidak
2. Oedema	☐ 1. Ya	☐ 2. Tidak
3. Anaemia	☐ 1. Ya	☐ 2. Tidak

4. Lainnya (sebutkan) ....

44. Adakah anda mempunyai sejarah komplikasi kebidanan berikut (jawaban boleh lebih dari satu)

1. Keguguran	☐ 1. Ya	☐ 2. Tidak
2. Perdarahan post partum	☐ 1. Ya	☐ 2. Tidak
3. Infeksi	☐ 1. Ya	☐ 2. Tidak
4. Pre eklampsia/Eklampsia	☐ 1. Ya	☐ 2. Tidak
5. Kematian janin	☐ 1. Ya	☐ 2. Tidak
6. Kematian neonatal	☐ 1. Ya	☐ 2. Tidak

7. Lainnya (sebutkan) ....

45. Apakah anda mempunyai masalah berikut selama kehamilan ini:

1. Perdarahan pervaginam	☐ 1. Yes	☐ 2. No
2. Sakit kepala dan odema	☐ 1. Yes	☐ 2. No
3. Kram	☐ 1. Yes	☐ 2. No
4. Hipertensi	☐ 1. Yes	☐ 2. No
5. Morning sickness	☐ 1. Yes	☐ 2. No

6. Lainnya (sebutkan) ....

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46. Keinginan untuk hamil:

☐ 1. Diinginkan ☐ 2. Tidak jelas ☐ 3. Tidak diinginkan

47. Suami anda memperhatikan kehamilan ini :

☐ 1. Ya ☐ 2. Tidak

48 Apakah suami mengantarkan anda ke puskesmas?

☐ 1. Ya ☐ 2. Tidak

49. Adakah suami membantu pekerjaan rumah anda?

☐ 1. Ya ☐ 2. Tidak

BAGIAN IV. PEMANFAATAN PELAYANAN ANTENATAL (Catatan Buku KIA)

50. Jumlah kunjungan: Trimester pertama : …………….. kali

Trimester kedua : ……………… kali

Silakan ucapkan "Terima kasih" atas kerjasama yang baik

Tanggal :

Pewawancara:

Tanda tangan pewawancara:

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APPENDIX C

Table C-1 Frequency and percentage distribution of respondents by knowledge items on antenatal care

No	Variable	Correct answer	
		n	%
1	Prenatal care is the health care women receive throughout pregnancy starting as soon as the woman knows she's pregnant until the baby is born	157	98.13
2	Antenatal care is comprehensive medical care provided during pregnancy which can be provided by doctor, midwife or other health care professional	152	95.00
3	The objective of ANC service is conducted to detect pregnancy	82	51.25
4	Pregnant women should attend ANC services at least 2 time during pregnancy	120	75.00
5	Pregnant women should visit ANC services at the first time when they miss menstrual	151	94.38
6	Prenatal care consists of regular examinations to check the expectant mother's blood pressure, weight, fetal heartbeat, tetanus immunization, iron and folic supplementary.	144	90.00
7	Risk assessment during ANC should be done at the first time service	69	43.13
8	Tetanus toxoid vaccination during pregnancy only prevent mother from tetanus	36	22.00
9	If pregnant woman does not feel fetal movement, she should visit ANC services as soon as possible	155	96.88

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Table C-1 Frequency and percentage distribution of respondents by knowledge items on antenatal care (cont.)

No	Variable	Correct answer	
		Frequency	%
10	Blood testing during ANC is necessary to assess anemia status of pregnant women	147	91.88
11	ANC is inopportunity to inform pregnant women about the danger signs and symptoms	116	72.50
12	Health education during antenatal period is also given due to enhance breastfeeding during lactation period	137	85.63

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Table C-2 Number and percentage distribution of the respondents classified by enabling resources on antenatal care services

Enabling resources	Yes		No	
	n	%	n	%
Accessibility and availability:				
Distance of health center is not far	109	68.13	51	31.88
The health center is easy to access	114	71.25	46	28.75
Easy to find transportation	114	71.25	46	28.75
The transportation is convenient	119	74.38	41	25.63
Travelling does not take much time	116	72.50	44	27.50
Waiting time				
Waiting time for examination is not long	145	90.63	15	9.38
Waiting time for treatment is not long	145	90.63	15	9.38
Waiting time for medicine is not long	143	89.38	17	10.63
Information acquirement				
ANC visits under the guidline	73	45.63	87	54.38
Taking drug during pregnancy	121	75.63	39	24.38
Safe activity	144	90.00	16	10.00
Personal hygiene	103	64.38	57	35.63
Nutritional advice (foods and taboos)	144	90.00	16	10.00
Safer sex	46	28.75	114	71.25
Planning for place of birth	138	86.25	22	13.75
Newborn care and exclusive breast-feeding	84	52.50	76	47.50
Breast care	54	33.75	106	66.25
Danger signs and symptoms	135	84.38	25	15.63
Family planning	147	91.88	13	8.13
Respondent believes health personnel	157	98.13	3	1.88

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Table C-3 Number and percentage distribution of the respondents classified by source of information

Source of information*	Yes		No	
	n	%	n	%
Mass media	69	43.13	91	56.88
Health personnel	156	97.5	4	2.50
Family member	150	93.75	10	6.25
Friends	145	90.63	15	9.38
Traditional birth attendant	14	8.75	146	91.25
Village health volunteer	93	58.13	67	41.88
Mother and child health handbook	98	61.25	62	38.75

* Multiple answers

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Table C-4 Frequency and percentage distribution of respondents by satisfaction of antenatal care services

No	Statement	Scale of satisfaction (n=160)				
		VS %	S %	UD %	US %	VU %
1	Willingness of health personnel at ANC clinic to help you when you have any health problem	16.25	69.38	10.0	3.13	1.25
2	Knowledge of health personnel at ANC services are enough to help you to manage your pregnancy	10.0	77.50	8.75	3.75	0
3	Satisfy with the environment of ANC clinic and comfortable when you received services	19.38	63.13	13.13	3.75	0.63
4	Satisfy with courtesy of midwife at health centre when you received services	15.63	62.50	8.75	12.50	0.63
5	Adequacy of equipment to conduct the ANC services	16.25	55.0	20.63	5.0	3.13
6	Having proper referral system at ANC clinic to ensure that women with complications get essential treatment	9.38	53.13	33.13	2.50	1.88
7	Adequate information that you would acquire from the health personnel	7.50	43.75	25.63	23.13	0
8	The services hour 08.00 – 12.00 is convenient	33.75	58.75	1.25	5.0	1.25
9	Satisfied with overall ANC services provided	11.25	55.63	21.88	8.13	3.13

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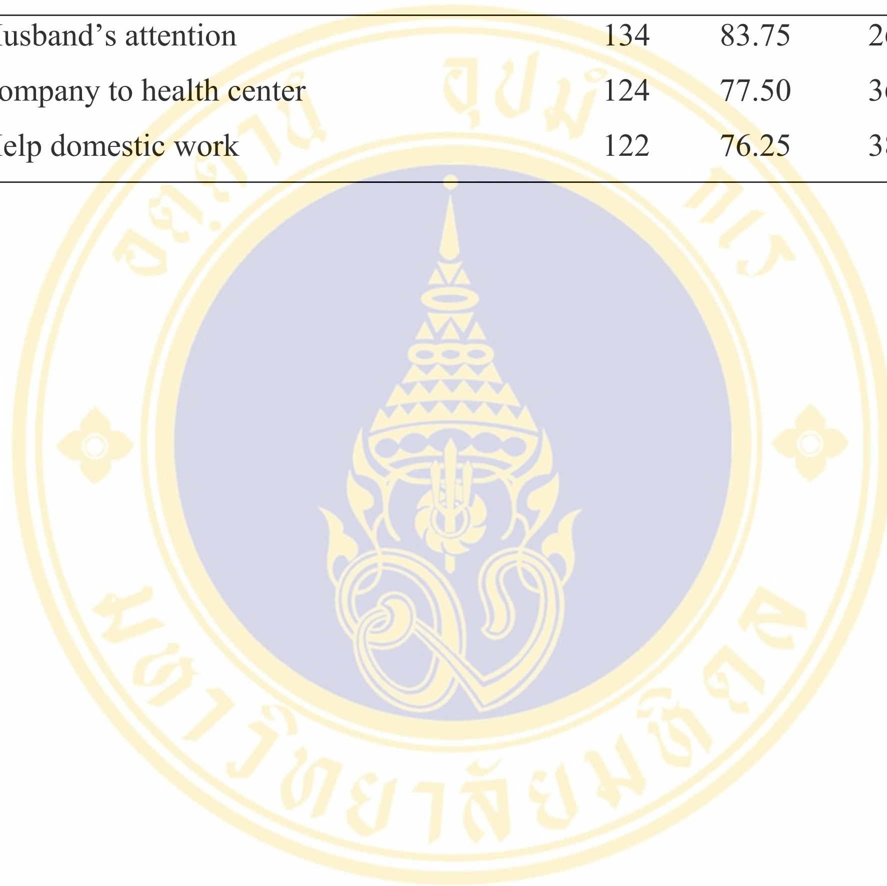
Table C-5 Number and percentage distribution of the respondents classified by husband's concern about pregnancy

Husband's concern*	Yes		No	
	n	%	n	%
Husband's attention	134	83.75	26	16.25
Company to health center	124	77.50	36	22.5
Help domestic work	122	76.25	38	23.75



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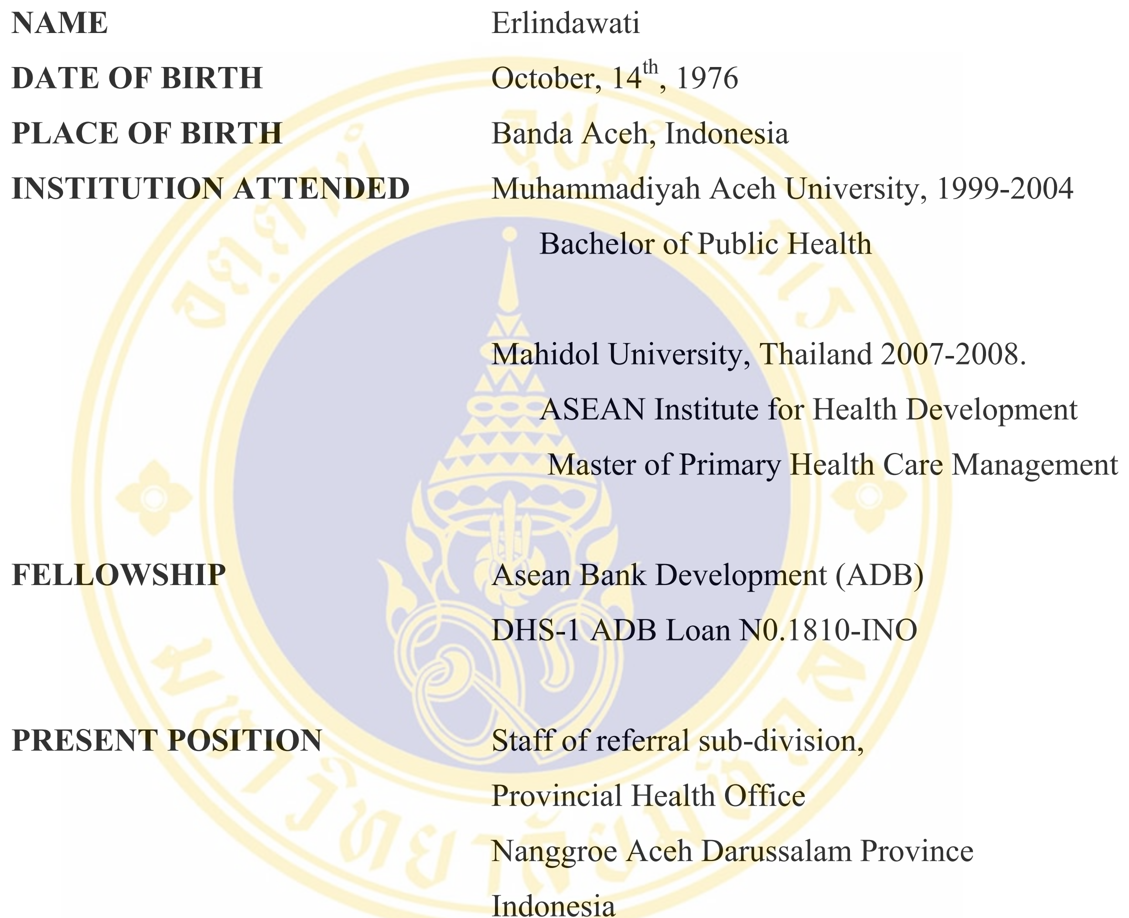

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