

## CHAPTER II

### LITERATURE REVIEW



#### 1. Background

Every year more than 200 million women become pregnant and some 15% are likely to develop complications during their pregnancy. Nearly 600,000 women between the ages of 15 and 49, which is known as a reproductive age group, die each year as a result of complications that arise from pregnancy and childbirth. Most maternal deaths are from five main causes of direct obstetric death. These are: postpartum hemorrhage, puerperal sepsis, unsafe abortion, obstructed labor, and hypertension. These account for nearly 80% of maternal deaths. 99% of these maternal deaths occur in developing countries, where many people are living under the poverty line. Pregnancy related maternal deaths are leading causes of deaths among reproductive age group population of developing countries. This tragedy can be prevented by actions that are effective within local setting and are affordable even when resources are limited (WHO, 1998; DHS/N, 1998; WHO, 2001; UNFPA/UNICEF, 2001; Nachbar, 1998).

Maternal mortality is not merely “a health disadvantage”; it is a “social disadvantage” as well. The result is not only a tragedy for the women concerned, but also for their entire family and society. Poor countries are facing higher burden of maternal deaths (DHS/N, 1998; Bernis, 2001). South Asia has 31% women population and 59% of the world’s maternal mortality. At the same time, industrialized countries have 25% women population and only 1% of the world’s maternal mortality. The poorest women within a developing country are most likely to

die. The figure of maternal mortality in the developing countries may even be worse because of the underreporting. In developing countries, it is estimated at 70% (Racellis, 2000; UNICEF, 2000). So the consequence of maternal mortality leaves strong impact on individual, family, community and overall society.

## **2. Situation of Maternal Health and Antenatal Care in Nepal**

More than 80% Nepalese population lives in the rural area. With the harsh condition of maternal mortality rate, most of the rural women are facing scars health problems. Fertility in the rural population is 4.4 than the urban 2.1. This rate is even higher (4.8) in the mountain region. Many studies have shown that the education is directly related to fertility rate. Women with at least secondary education have twice as fewer children as uneducated women. An average age at marriage of Nepalese women is 16.8 years. Seventy percent women in all age give first birth by age 22. Moreover, one in five adolescent women are 15-19 are already mothers or pregnant with their first child. Nepal Demography and Health Survey, 2001 reviewed ten years pregnancy outcome and found that pregnancies losses were 8 percents. In average one in two pregnant women receives antenatal care. Most of the Nepalese women who receive antenatal care get it at a relatively late stage in their pregnancy and do not make the minimum recommended number of antenatal visits.

Only one in seven (14%) women makes four or more visits during their entire pregnancy, while only 16 percents women make their first visit at less than four months of pregnancy.

Less than one in ten births takes place in a health facility. And nearly four in five mothers do not receive postnatal care at all. Women in Nepal are generally less educated than men. Three in four women in Nepal do not have Iron or folic acid

tablets during their pregnancy, and 14 percents of whom taking iron do not take it more than 60 days during their pregnancy. Unlike in the most other countries, the women's life expectancy here is lower than men's (NDHS, 2001).

### **3. Antenatal Care: A Measure to Improve Maternal Health**

The use of maternal health care service reduces maternal and child mortality and improves the reproductive health of women (Navaneetham, et.al.; 2002). Many of the causes of maternal mortality are preventable with the provision of appropriate antenatal care (DHS/N, 1998). Generally, maternal health care includes prenatal (antenatal), delivery, and postnatal (postpartum) care. The focus of prenatal care is to improve pregnancy outcomes by decreasing maternal and infant morbidity and mortality (Meure, et.al., 2001). Primary rationale for the antenatal care has been to screen a predominantly healthy population so that early signs of, or risk factors for morbidity and mortality can be detected and intervened upon. WHO has proclaimed that safe motherhood is attainable and does not require high technology investments and equipment (Vansetta, et.al., 2000). Antenatal care makes a significant contribution to maternal and perinatal health and is, therefore, an essential component of care for mother and baby, together with family planning, clean and safe delivery, and essential obstetric care (Villar, et.al., 2002).

#### **3.1 Components of Antenatal Care**

Antenatal care is a branch of preventive medicine dealing with prevention and early detection of pregnancy disorders; it is the key to modern obstetrics (Sultana, 2002). It has three main categories: a) assessment (including history taking, physical examination and laboratory tests to identify problems or risk factors); b) health promotion: (including advice on nutrition, planning the birth, information about

danger signs and contingency planning, subsequent contraception and breast-feeding);  
c) care provision: (including iron and folate supplement, TT immunization, psychological support and record keeping) (Matthews, et.al, 2001).

WHO Safer Motherhood Inter-Agency Group (1998) had published an assumption that prenatal screening can identify women at risk of an adverse outcome and that targeting as one of the key strategies in the safe motherhood initiative. Some of the measures that are effective in ANC are screening for and prevention of infection; prevention, detection, and treatment of anemia; detection of mal presentations; and detection, investigation of and treatment of pregnancy hypertension (Marion, 2001).

### **3.2 Importance of Antenatal Care and Minimum Requirements**

WHO Technical Working Group (1994) has recommended a minimum of four antenatal visits for normal pregnancy. The minimum requirements of ANC is for:

- 1) Health promotion: advice on nutrition and health care, counseling on danger signs and to help plan for the birth,
- 2) Assessment: history taking, physical examination and screening tests,
- 3) Early detection and management of complications, prevention of malaria, hook worm and tetanus, and
- 4) Treatment and conditions management of anemia, STD and other diseases.

WHO has recommended the basic component of the new WHO antenatal care mode. It describe the time and contents of each four visits:

1. The first visit: normally it should be in the first trimester of the pregnancy. It should be around or before 12 weeks. However, regardless of the gestational age at enrollment, all women coming to the clinic is enrolled and examined according to the first visit. The content of the first visit are: 1) obtain information on

personal history, medical history, and obstetric history; 2) perform physical examination; 3) perform laboratory tests; 4) assess for referral, 5) provide interventions to anemia, STDs, malaria, TT vaccine (first injection), 6) provide advice, question answers and scheduling the next appointment and; 7) maintain complete records.

2. The second visit should be around 26<sup>th</sup> week. The contents of this visit are: 1) obtain information on personal history like in the first visit; review of medical and obstetric history recorded at the first visit, and check systems of present pregnancy; 2) perform physical examination; 3) repeat urine and blood Hb; 4) assess for referral; 5) continue iron supplement and treat others problem if existed; 6) continue advice, question answering and scheduling for the next visit; and 7) maintain complete records.
3. The third visit should be take place in or around 32<sup>nd</sup> week of gestation. The contents of this visit are 1) obtain information on personal history like in the first and second visit; review of medical and obstetric history recorded at the second visit, and check systems of present pregnancy; 2) perform physical examination including uterine height, fetal heart sound and movements etc; 3) repeat urine and blood Hb; 4) assess for referral; 5) continue iron supplement, TT vaccine and treat others problem if existed; 6) continue advice, question answering and scheduling for the next visit; and 7) maintain complete records.
4. The fourth visit should be the final and should take place between weeks 36 and 38. This is considered an extremely important that women with fetuses in beech presentation should be discovered. The contents of this visit are: 1) obtain information on personal history like in the first and second visit; review of

medical and obstetric history recorded at the second visit, and check systems of present pregnancy; 2) perform physical examination including uterine height, fetal heart sound and movements, edema, bleeding, multiple fetus etc; 3) repeat urine and blood Hb; 4) assess for referral if there are unexpected signs, eclampsia; vaginal bleeding etc. 5) continue iron supplement, tt vaccine and treat others problem if existed; 6) continue advice, question answering and scheduling for the next visit (for the postpartum visit); and 7) maintain complete records.

There are many arguments in the effectiveness of the ANC. The report of “Antenatal care and maternal health: How effective is it?” concludes that strikingly little is known about the effectiveness of ANC; effective intervention in pregnancy relate, mainly to chronic conditions such as anemia, hypertension, or infection rather than to acute condition close to the time of delivery. Vansette, et.al., (2000) say that “antenatal care may not be an efficient strategy to identify those most in need for obstetric service delivery, but if promoted in concurred with effective emergency obstetric care, and delivered in skilled hand, it may become an effective instrument to facilitate better use of emergency obstetric care service.” For instance, they have found that a women with an antenatal visit, single blood pressure measurement and assessment of fundal height are four times more likely to deliver with a midwife than women who had no antenatal visit.

In Vietnam, around two third of women received the recommended three ANC examinations; only 10% had none. There was a clear relationship between the number of ANC examination and the rate of perinatal mortality. The perinatal mortality rate was half for women with the recommended two TT injections compared with women not having received any injections (Chein, 2002). Although this has no direct effect on maternal mortality, it is an indirect reflection of antenatal care. A community

based study in South Karnataka, India by Chandrasekhar, et.al. (1998), also showed that antenatal care has association with infant mortality rate.

WHO Making Pregnancy Safer Initiative (2001) has given some interventions to prevent some causes of maternal deaths, newborn deaths and stillbirths. Most of the proven interventions are effective and useful during the antenatal period. The following table shows the interventions:

Table 2 Causes of deaths and proven interventions during antenatal period

Causes of Deaths	Main Interventions
<u>Maternal Death</u>	
– Bleeding after delivery (PPH)	– Treat anemia in pregnancy; skilled attendant at birth.
– Hypertension, eclampsia	– Detect in pregnancy, refer to doctor or hospital, give anticonvulsive.
– Obstructed labor	– Detect in time and refer.
– Other direct obstetric cause	– Refer ectopic pregnancy for operation.
– Indirect causes	– Disease specific interventions.
<u>Newborn Deaths:</u>	
– Infections (sepsis, meningitis, pneumonia, neo-tetanus, congenital syphilis)	– Maternal TT, screening for disease treatment, cleaning, early recognition and referral
– Pre-term birth and low weight	– Anti malarial for at risk women, STD treatment, management complication, smoking cessation.
<u>Still Birth:</u>	
– Pregnancy complication, maternal disease, malaria, malformation	– Pregnancy care, effective management at pregnancy.

(Source: Making Pregnancy Safer Initiative, WHO, 2001)

#### **4. Utilization of Antenatal Care and Factors Related to the Utilization**

Despite many benefits of ANC pregnant women in the developing countries utilize it less. In developing countries 65% of women make at least one ANC visit, 53% give birth with a skilled attendant; where as in developed countries 97% visit at least one ANC, 99% give birth with a skilled attendant, and 90% make at least one postpartum check up (Villar, J., 2002).

A several studies have been carried out to understand why antenatal services are underutilized in developing countries. The conclusions of most of the research have been that there is no universal explanation that applies to all places and times regarding the determinants of utilization of MCH services. They are not the same across socio-economic and cultural contexts (Navaneetham et.al. 2002).

There are many general factors, which influence service utilization. A study, carried out by World Bank (2001) on “Understanding the access, demand and utilization of health services by rural women in Nepal and their constraints”, has determined the general factors related to utilization of health services by women in Nepal. Those are: lack of knowledge about illness; lack of decision making power; inability to pay; disregard for illnesses; unwillingness to disclose the illnesses; low value given to women’s lives; distance from the health facility; lack of time; alcoholism and violence; caste discrimination; presence of female health services providers; age; education; family size; satisfaction from the health services; and flow of information.

A study on “the frequent attendees in primary health care in Finland” concludes that eventual choice to use health care depends on a variety of different factors (Jyvasjarvi, 2001). These factors have been explained by client’s personal factors, such as health or illness, symptoms, knowledge, beliefs, experience, feelings of threat, needs, coping



factors etc.; social factors such as socio-demographic factors, family factors, social support etc; and factors related to the health care system such as geographic distance, availability, accessibility, costs etc.

If we talk about antenatal care utilization in particular, many studies have suggested that the key demographic factors related to the insufficient prenatal care. Key demographic factors associated with insufficient prenatal care include poverty, being unmarried, age less than 20 years, higher parity, and having less than a high school education etc. It is often difficult or impossible to separate the effects of poverty, marital status, or other socio-economic factors for the decision to seek prenatal care (Simpson et.al.1996). Chandrasekar et.al.(1998) have also found the association between ANC utilization and maternal education, age and parity. A high number of past pregnancies are associated with a decrease in the number of routine antenatal visits (Herbert, 2001).

Satisfaction toward the services and providers can be a strong predictor for antenatal service utilization. Ware and Davis (1983) studied the effects of consumer's dissatisfaction with health services. They found that consumer satisfaction or dissatisfaction with their practitioners (service providers) contributes significance to the consumer's behavior and is an effective indicator of predicting whether they are likely to use the available health services (Kovinda, 1997).

Social support has also a main role in health services utilization by the clients. A study (Jirojowong et.al, 1999) on social supports and antenatal clinic attendance among Thai pregnant women in Hatyai, a city in southern Thailand found that social support to the women could have positive and/or negative effects on the women's use of ANC. Approximately 76% of the women have sufficient social support in

Thailand. Spouse, relatives and friends are important sources of social support. There are 4 principle types to social support, namely emotional, instrumental, informational and appraisal supports (Heaney, et.al., 1997).

Exposure to mass media is also another factor influencing service utilization. Women exposed to mass media tend to utilize antenatal services either at home or from outside, so it is an important factor for the utilization of antenatal care. This mass media can be radio, TV or cinemas. Women living in urban areas are also more likely to opt for antenatal care service and institutional delivery (Mondal, 1997).

Likewise, a study about the utilization of antenatal care in Rajasthan suggests that 3 factors are related to ANC utilization. Those are: 1) age of the mother, her ethnic group affiliation, education and place of residence; 2) the expected benefits from the treatment and beliefs; and 3) the quality of the care and availability of a health facility including the cost of treatment. This study further says that maternal education has positive effect on the utilization of general health services. Under-utilization of the clinics by the pregnant women is often due to lack of knowledge. At Lucknow, 33% mothers don't use ANC due to ignorance. Exposure to the media has also an important role for the utilization on ANC. The main problem of under-utilization is embodied in the socioeconomic status of the household and cultural backgrounds of care seekers (Mondal, 1997).

## **5. Theories and Models Related to the Health Services Utilization**

There are various theories and models related to health services utilization. All of these theories and models suggest various factors that have negative or positive effects on the pattern of services use by the individual. Some of these theories are briefly described as follows:

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### **5.1 Anderson and Andersen Model**

Andersen has developed a conceptual model, called “The Andersen’s Behavioral Model” for the individual determinants of the use of health services. This model has been referred to frequently in health services utilization research. In this model Anderson proposes that use of health service is a function of three sets of factors: 1) predisposing factors (age, gender, marital status, past illnesses, education, race, occupation, family size, ethnicity, religion, residential morbidity and individual health beliefs); 2) enabling factors (income, type of resources, access to health service, price of health services, distance, family size, time availability etc); and 3) need factors (presence of symptoms or disease, chronic illness, disability days, new illness etc) (Kaplan, et.al, 1993; Jyvasjarvi, 2001)

In this model, the use of health service is a sequential and conditional function of an individual’s predisposition to use health services. The enabling component indicates that although the individual may be predisposed to use the health service, the individual must also have some means of obtaining them. These factors may promote or discourage the use of health services. These two factors are not sufficient. Ultimately it requires individual’s perception of need before health care is sought. This need level is the most crucial component that effects choice of health services utilization (Kovindha, 1997).

### **5.2 Health Beliefs Model**

Person’s reactions to symptoms of illness are modified by various factors. Experienced threats of illness, coping factor and the cue to action are the motivational factors to use health services. The “cue to action” concept means that different cues, information and/or recommendations act as the final stimulus to the behavior carried

out (Kaplan, et.al., 1993; Jyvasjarvi, 2001). There is another model, which is later developed as health belief model, Rosenstock model (1959). It is based on psychological motivational determinants of health service utilization. Emotional factors rather than cognitive beliefs of a person are crucial to understanding utilization. Individual will likely to seek care if they believe they are susceptible to a disease. This also suggests behaviors in which healthy people seek care to avoid illness (Kovindha, 1997).

### **5.3 PRECEDE-PROCEED Model**

This model explains the process of determining health status and the factors responsible for producing it. The concept may be applied to an individual, family, group or community perspective. There are three distinct kinds of factors that influence the health behaviors. These are: 1) predisposing, 2) reinforcing and 3) enabling factors, which effect individual's behavior and environment. These factors play role in encouraging or hindering the health behaviors of the people (Sogaard, 1992; Green, et.al, 1999). Although this model is best fitted to health promotion, health education, training etc and has been used in these fields for a long time, it also helps us to conceptualize how the three main factors in this model affects individual behavior in utilization of health services.

### **5.4 Theory of Reasoned Action (Fishbein 1980)**

This model explains about the attitude and expected behavior relationship. A person's attitude toward an object influences the overall pattern of his or her response to the object. This model has been tested in several studies. Sugar consumption; tooth brushing behavior and demand for dental service use are some of the studies. This has comprises of three main variables group - demographic variables such as age, sex,

occupation, socioeconomic status, religion, and education; attitude toward target variables such as attitude toward people and institution; and finally, personality trait variables such as introversion, extroversion etc. These all factors affect person's intention and that determine the particular behavior of a person on health service utilization as well (Sogaard, 1992; Kaplan, et.al.,1993).

### **5.5 Bio-psychological model (Engel, 1977)**

This model emphasizes that a change in one effect changes in the other. It begins from molecules and cells and ends with society of biosphere. All are linked to each other in a hierarchical relationship. This conceptual approach helps us to understand the factors such as disease, psychological factors, social environment (e.g. family, friends) and its effects on health services utilization (Jyvasjarvi, 2001).

## **6. Conclusion**

A several studies have been done with the aim to understand why some women use antenatal care as required and some do not. Almost all studies have a conclusion that there is no universal explanation of determinants of antenatal care utilization. It varies across the place and socio-cultural and individual characteristics of a person. Most of the studies are focused on rural settings. Although the patterns of antenatal care use in urban woman have found to be higher than women reside in rural area, some urban women are still do not utilize complete antenatal care that is available sufficient than their fellow rural women. Women with low education, old age, higher parity, inadequate knowledge and attitude, unplanned pregnancy and with lower degree of social support are likely to have poor antenatal care utilization practice. Family income, husband's education and occupation, exposure to information and occupation are also related to the antenatal care utilization practices by pregnant women.

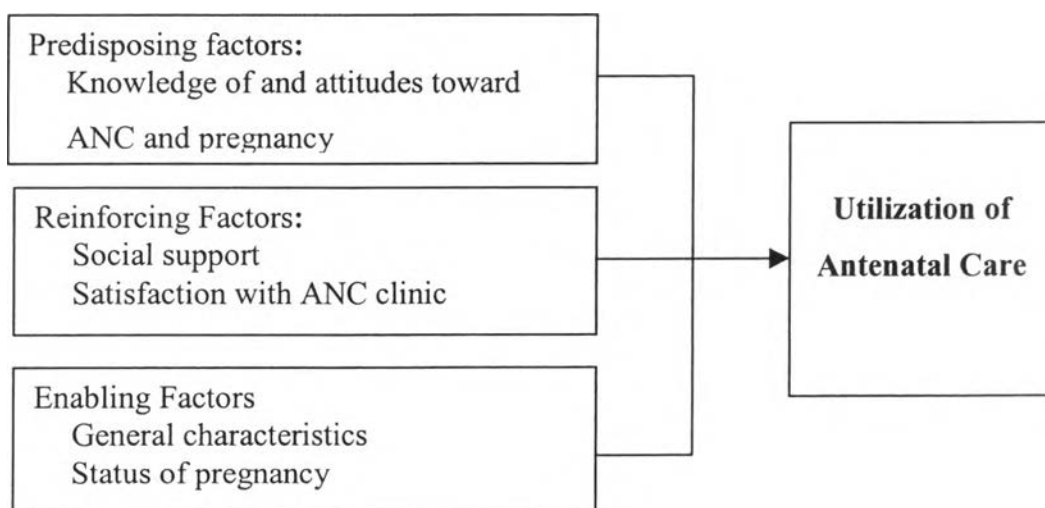
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## 7. Conceptual Framework

Since the antenatal care is a form of health promotional activity for pregnant and fetus. It needs a long-term behavioral change in order to use the health services optimally. Therefore, in this case, PRECEDE framework can be a best model to use to describe factors related to the utilization of antenatal care service.

This framework has three main components. Knowledge, attitudes, values and perceptions are come under “predisposing factors”. These factors play role in increasing or decreasing the motivation for change. The second factor, “enabling factors”, includes availability of resources, accessibility, lack of income etc. These factors are usually thought of as barriers to change. And, lastly, “Reinforcing factors” are usually social feedback that encourage or discourage change (Sogaard, 1992; Kaplan, et.al, 1993). This framework can be used in describing factors related to the utilization of antenatal care as below:

Figure 1 Factors related to the utilization of antenatal care



Source: PRECEDE framework, Kaplan, et. al., Health and Human Behavior, 1993:56)

For the purpose of this study the conceptual framework herein is derived from the concept of the above-mentioned framework. There are several variables that can have

positive or negative effects on the complete utilization of antenatal care. But, in this conceptual framework, six main variables, which were mainly mentioned in the literature review earlier, are covered. These 6 independent variables in this study can have influence on complete utilization of antenatal care, as shown in Figure 2 below:

Figure 2 Research conceptual framework

