CHAPTER I

INTRODUCTION

1.1 Background

Complications of pregnancy and childbirth are a major health problem in the world because about 500,000 women of reproductive age groups (15-49 years) die yearly (WHO 2000) and 15 million suffers from permanent disability. (www.safemotherhood.org)

Developing countries account for 90 % (WHO 2000) of maternal deaths each year. Out of that 40% of the deaths occur in the south East Asian region. (WHO 2000). Bhutan has high maternal mortality of 255/1000 live births. (Health survey 2000)

Maternal mortality: "Death of a women while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and the site of pregnancy, from any causes related to or aggravated by the pregnancy or its management but not from incidental or accidental causes" (ICD-10)

Maternal morbidity: Morbidity in pregnant women (regardless of the site and duration of pregnancy) from any cause related to, or aggravated by the pregnancy or its management but not from accidental or incidental causes. (WHO)

Majority of the maternal deaths could be prevented by timely intervention (www.safemothehood.org). One intervention that has been found to be cost effective in reducing maternal death is trained attendant at birth, (Jowett M.; 2000, pp.201–228)

Table 1: Specific interventions for reducing maternal deaths.

Causes of maternal death	Percentage	Proven intervention
Hemorrhage	25%	Trained attendant at birth: prevent and treat with appropriate drugs.
Sepsis	15%	Trained attendant at birth: Clean practice and treat infection
Unsafe abortion	13%	Trained attendant and manage the problems.
Eclampsia	12%	Detect and go to health center for treatment
Obstructed labor	8%	Detect in time and treat
Other direct obstetric causes	8%	Manage by trained personnel

Source http://w3.whosea.org/pregnancy/chap.3ht

Trained attendant: "The Doctor (specialist or non-specialist), and/or the person with midwifery skills, who can diagnose and manage obstetrical complications as well as manage them". (WHO).

But women in many parts of the world do not get the service of a trained attendant at birth. (WHO 2000) In order to increase trained attendant at birth focus was given on training traditional birth attendant. (Goldman, N. Dana, A. Glei., 2003 pp685-700)

Traditional birth attendant (TBA): They are a person who have been assisting in delivering babies, and has acquired her knowledge and skills of delivering babies by delivering babies herself or from other traditional birth attendant. (WHO)

Trained traditional birth attendant (TTBA): They are traditional birth attendants (TBA) who have received a short course of training (one month or more) through the modern health care sector to upgrade her skills. (WHO)

But in Bhutan there is no officially recognized traditional birth attendant. According to Bhutan national health survey report of 2000 when women who delivered in their homes, were asked who assisted them in their deliveries it was found that most of the home deliveries were conducted by mother/ mother in laws (33.44%), husbands (23.99%) other in laws (11.1%) and village health workers. (0.17%). (National health survey Bhutan 2000). No data is available on the reason why they did not go to hospital. Village health workers are not trained in attending to deliveries.

So it was thought appropriate to give education directly to women of reproductive age group on the danger signs of pregnancy. Inform them to come to hospital for treatment of these danger signs and also inform them to come to hospital for delivery even if danger signs were not present. The educational program was on five danger signs of pregnancy. These signs were adapted from the book "Management of complications of pregnancy and child birth" published by world health organization in 2000. It is based on the common causes of maternal mortality in the world as well as in Bhutan.

As per World Health Organization the common causes of maternal mortality are: severe bleeding 25%, Infection 15%, Eclampsia 12%, Obstructed labor 8%, other direct causes8% (Ectopic, abortion, embolism, anesthesia complications), unsafe abortions 13%, indirect causes 19%(malaria, anemia, heart diseases). (WHO 2000)

Common causes of maternal mortality in Bhutan are Bleeding, Infection, Prolonged labor, Hypertension and Eclampsia.

Paro hospital was to carry out the community based education program.

The five danger signs of pregnancy used for the education program are 1) Fever 2) fits (convulsion) 3) Severe headache with blurring of vision 4) Per vaginal bleeding during pregnancy 5) Labor pains lasting for more then 12 hours. (MCPC, WHO 2000).

Fever: Body temperature higher then normal and often associated with shivering (concise oxford dictionary 2000) and initial symptoms of any infection in pregnancy is fever. (Langford, K.S. 2002, pp.125).

Severe headache with blurring of vision is a sign of increased blood pressure due to physiological changes of pregnancy. And it is called pre-Eclampsia. (Mackay, A.P. et al 2001;pp.533-538). Severe headache with blurring of vision in pregnancy is an important sign to be recognized, as it is life threatening. (Lipstein,H. L. Christopher, C. 2003)

Fits was another sign, and it means abnormal movement of the body, and it signifies in local term convulsion. And convulsion is defined as "sudden, violent, irregular movement of the body caused by involuntary contraction of muscles". (Concise oxford dictionary 2000)

Convulsion in pregnancy signifies Eclampsia. Eclampsia is defined as "convulsion resulting from hypertensive encephalopathy on the background of Preeclampsia." (Mackay, A.P. et al 2001;533-538)

Bleeding during pregnancy is called 'ante-partum hemorrhage'. Which Morgan and kumaran (Morgan.K. et al;2003) defines as "Any vaginal bleeding from the female genital tract that occurs during pregnancy from the time of potential fetal viability to delivery of the baby."

Antepartum hemorrhage (APH) is an important condition because it causes life-threatening complications in Pregnancy. Early and timely management of ante partum hemorrhage is expected to reduce maternal and fetal morbidity and mortality. (Morgan.K, 2003)

Labor pain lasting for more then 12 hours signifies 'prolonged labor', and if the labor pain is prolonged for a long time there is chance of mortality and morbidity for the fetus as well as the mother. (MCPC, WHO; 2000)

1.2 Description of the Educational Program

Rationale for Educational Intervention

In Bhutan health care is free and health coverage is about 90% (Health survey 2000). Paro district hospital had facilities for management of complications of pregnancy and delivery and good communication facilities and referral system. But hospital use for delivery was only 20.2%. (Health survey 2000) So giving education on five danger signs and informing them to come to hospital for treatment of these danger signs and delivery would increase their knowledge on danger signs and also increase hospital use for delivery and treatment of complications of pregnancy. This would increase trained attendant at birth. Measuring process indicators like deliveries assisted by trained attendant will estimate maternal mortality (Ronsmans et al 2002) Measurement of severe obstetric morbidity is another way of measuring maternal mortality.(Waterstone et al 2001)

1.3 Problem Statement

Maternal mortality in Bhutan is 255/100,000 live births. (Health survey 2000). And when causes of maternal mortality were investigated in the year 2001, 75% of the deaths have occurred in the homes. (Maternal mortality review 2000) A trained attendant at birth could have prevented all these deaths with timely intervention at birth. High maternal mortality in Bhutan is probably due to under utilization of the hospital for treatment of complications of pregnancy and for delivery.

1.4 Objective of the Educational Program

1. To increase knowledge among the women of reproductive age group on the danger signs of pregnancy.
2. To increase hospital use for treatment of danger signs of pregnancy and delivery and thus increase-trained attendant at birth.

1.5 Method of Intervention Program

The community based education program on five danger signs of pregnancy was conducted by trained health workers. Prior to the program the health workers were trained for five days on five danger signs of pregnancy. Then the village leaders were told to inform the women in their villages to attend the education program. The participation for the education program was voluntary. The health workers went to the villages and conducted the education program on a monthly basis. They used a printed

message to explain the five danger signs of pregnancy. The health workers also informed these women to come to hospital for treatment of these danger signs of pregnancy. And even if they did not develop any danger signs, women were told to come to hospital for delivery. All the women coming to hospital for treatment of these danger signs were instructed to come to hospital for delivery. The nurses gave this instruction when the women left the hospital after treatment. All women of reproductive age group (15-49 years) were the target group for the education program.

The education program was started in June 2002 and completed in June 2003.

1.6 Background Information on the Intervention Area (Paro) and Control area (Punakha)

Paro and Punakha are two districts situated in the western Part of Bhutan.

Population:

The catchment area under Paro hospital has a population of 12,937, women (15-49 years) is 1,943. 16% of the women of reproductive age group are pregnant any time. Hospital utilization for delivery before the education program is about 20-23%. Before the start of the education program about 7% of the complications of pregnancy are coming to hospital for treatment. (Community Health Unit, Paro hospital, 2001). 15% of all pregnancies are expected to have complications (UNFPA 2002)

The catchment area under Punakha hospital has a population of 8,203 and women (15-49 years) constitute 1,265. Pregnancy rate is about 15-18%, hospital use for delivery is about 20% and approximately 7-8% of complications of pregnancy are treated in the hospital. (Community Health unit, Punakha Hospital, 2001)

Adult literacy rate is in western Bhutan is about 54%, Primary school enrollment rate of 72%, and 45% are girls in primary school enrollment. (UNICEF 2000)

Women's status in Bhutan

Women in Bhutan are treated equally and gender balance is maintained and women do not face many of the disadvantages faced by women in other developing countries. Women are also involved in decision making level in the house hold and at the community level. (UNICEF 2000). This gender balanced factor may be one of the positive factors which may be important in reducing maternal mortality and morbidity. Because in many other countries a woman does not have the decision making power and it is the mother in law or the husband who decides for the women regarding treatment during pregnancy and delivery. (Jowett, M. 2000).

Health services in Bhutan

In Bhutan health service is free and patients are also provided with free food and lodging during the period of their stay in the hospital. Ambulance service is provided free for bringing the patient from home to the hospital and from the hospital to the higher referral center.

Paro hospital is a 40 bed hospital constructed in the year 1997. It provides both curative and preventive services. It has nine outreach clinics which provide community based antenatal, post natal and family planning services for the women of reproductive age groups on a monthly basis. Besides that the community health staffs also provides health education programs on prevention of common illnesses. However the education on recognizing the five danger signs of pregnancy was not given by them.

Inpatient services for the treatment of obstetric cases: Paro hospital has been upgraded to Basic EmOC (emergency obstetric care) center in the year 2002.(Safe motherhood project to strengthen EmOC in districts hospitals in Bhutan-2003)

Basic EmOC center: A basic EmOc center is without an operating theatre but following functions are carried out. Giving I/V antibiotics, oxytocics, Anti-convulsant, assisted vaginal deliveries and removal of retained products. (UNFPA 2002; Focus on Emergency obstetric care).

All patients requiring specialized treatment are referred to Jigme Dorji Wangchuk national referral hospital situated in Thimphu the capital of Bhutan which is about 63 kilometers away.

Punakha hospital is a 20 bedded hospital built in the year 1995.It provides similar services like Paro Hospital. It has got six out reach clinics providing community based services like Paro Hospital. Punakha Hospital was upgraded to Basic EmOC center in

the year 2001. All patients are referred to the same hospital as Paro hospital. The referral center in the capital is situated about 65 kilometers away.

1.7 Research Objectives

The objective of this study is evaluating the outcome of the education program and to see if the education program fulfills its objective. The objective of the education program was to increase the women's level of knowledge on danger signs of pregnancy and also increase hospital utilization for delivery and treatment of complications of pregnancy. So in order to see the out come, this study assessed the level of women's knowledge on danger signs after the education program and compared it with a control group without the education program. Comparison of hospital use for delivery and treatment of complications of pregnancy was done between the intervention and the control area, before, during and after the intervention. Association between the main independent variable like, age, parity, occupation and education level with level of knowledge of women was assessed in both intervention and control area.

1.8 General Objective:

To determine whether the education program has been successful in increasing the level of knowledge of women on danger signs of pregnancy among women of reproductive age group and increase hospital utilization for delivery and treatment of complications of pregnancy.

Specific objectives:

a) Ascertain level of knowledge on pregnancy danger signs in the intervention and the control area and its association with socio-demographic variables.

b) Compare the level of knowledge in the intervention and the control area.

c) Compare frequency/rate of hospital use for danger signs in the intervention and the control area, before during and after the intervention.

d) Compare frequencies/rates of hospital use for delivery in the intervention and the control area, before, during and after intervention.

e) In Paro, Compare level of knowledge of women who had attended the program with those who had not.

1.9 Conceptual Frame Work:

The conceptual framework of this study describes the outcome of an education program. The outcome of any education program depends on many socio demographic characteristics of the population receiving the program.

Based on literature review the main independent variables studied in this study are Age, Parity, education level and occupation of women. These independent variables are supposed to have an impact on the knowledge level of a woman. The dependent variables are level of knowledge of women on five danger signs of pregnancy and hospital utilization for delivery and treatment of complications of pregnancy.

Besides that the success of a program also depends on the Input and process of the program. Input of the program is the activities that were carried out before the start of the program. The process of the program is the process of the implementation of the program. The input and the process of the program are not specifically addressed in this study.

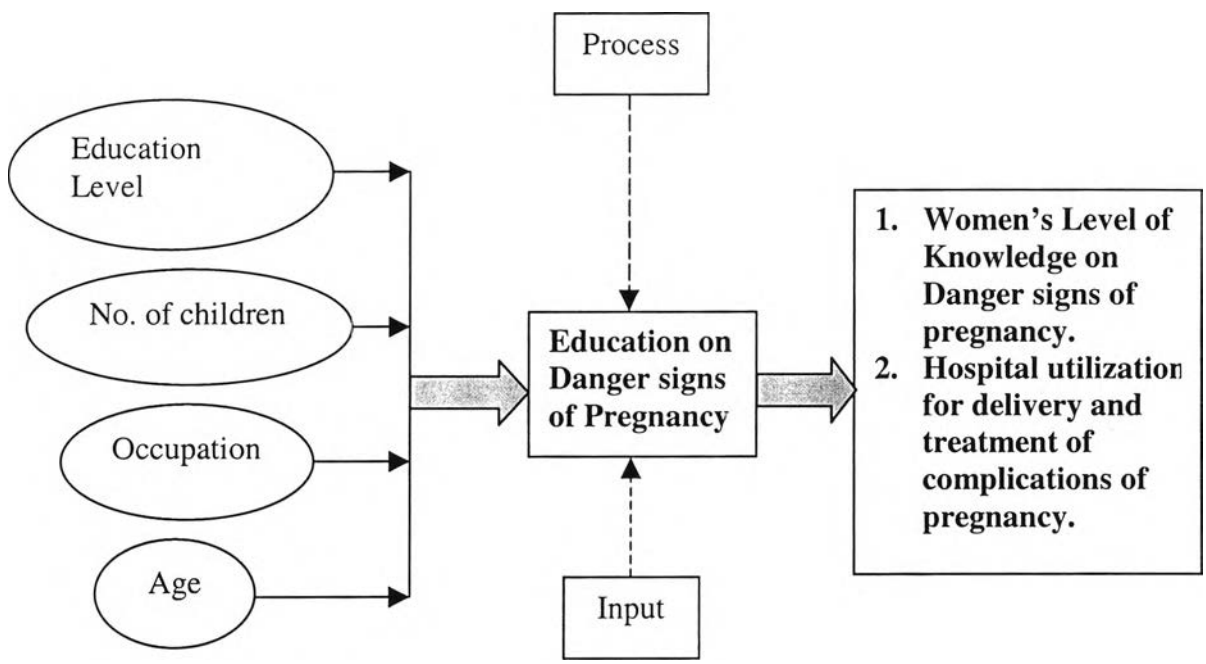

Figure 1: Conceptual Framework

1.10 Research Questions

- Does giving education to women on danger signs increase their knowledge on danger signs of pregnancy?
- Does this education program increase the hospital utilization for treatment of complications of pregnancy and for delivery?

- Is there an association between the level of knowledge and socio demographic factors?
- Is there an association between hospital utilization before and after the program?

1.11 Research Hypothesis

- Women's level of knowledge on danger signs will be higher in the area with education program than in the area without the education program.
- Increase in Hospital utilization for delivery and treatment of complications of pregnancy after the education program as compared to before the program will be more in Paro than Punakha.
- Hospital utilization for delivery and treatment of complications of pregnancy in Paro will increase after the education program.

1.12 Operational Definitions of Terms

	Variables	Operational definitions
Independent	Age	It is the age of the women between 15-49 years of age.
	Occupation	It is the occupation of the women which may be house wife, Government servant, Business, Farming, and day laborer.
	Number of children (Parity)	It is the number of children born and whether they may be alive or dead.
	Education level	The education level is divided into different categories, none when the person has not attended any forms of educational institution. Primary is standard six and below. Secondary is standard seven and eight, higher secondary is between standard nine and twelve, college university after that. Non-formal education is a form of education imparted to all women in basic reading and writing skills.
Dependent Variables	Level of knowledge on Danger signs of pregnancy	The level of knowledge is categorized based on the number of right answer the woman is able to cite. Ranging from all five right answers to none or wrong answer or did not know.
	Hospital utilization for Delivery and treatment of complications of pregnancy	It is the rate of hospital utilization for delivery and treatment of complications of pregnancy.

1.13 Assumption:

The hospital utilization may not be increased because the reason for low hospital utilization in Bhutan may not be due to lack of knowledge on danger signs.

1.14 Limitations of the Research:

- The success of an educational program also depends on the input and process of the program. This study only looks at the outcome of the education program. Input and process evaluation of the program is not done. So this study is not able to explain about the planning and implementation of the education program.
- This is a cross sectional study design so it measures the level of knowledge of women at a point of time and not over time.

1.15 Expected Benefits:

- Helped the researcher to understand the process of evaluation, this knowledge could be utilized in future evaluation process.
- Helped the researcher to make successful programs in the future.
- Guide the program implementers to improve the programs in the future.
- The base line data on the socio demographic variables of the community can be used by the program and the hospital for future activities.