

**PREGNANCY OUTCOMES IN NEPAL: AN INVESTIGATION OF THE  
RELATIONSHIPS BETWEEN SOCIOECONOMIC FACTORS, MATERNAL  
FACTORS AND FOETAL AND MATERNAL OUTCOMES IN A POKHARA  
SAMPLE**

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## ABSTRACT

Good maternal reproductive health is a prerequisite for the health of babies and families. Social, cultural, economic and health systems also affect the wellbeing and survival of women during pregnancy and childbirth. In Nepal, a developing country, women are discriminated against in terms of legal status, access to education, access to food, and access to relevant health care services (Tuladhar, 1996). Where women do not have access to such services, maternal, perinatal, and infant mortality rates are comparatively high (The Ministry of Health & UNICEF, 1996).

There is a scarcity of research on the relationships between socioeconomic and maternal factors and pregnancy outcomes in the Nepalese context. The intention of the present study was to gain a greater understanding of factors affecting the health and behaviour of pregnant women in Nepal. Based on Mosley & Chen's (1984) and Maine's (1995) models of maternal and child survival, these factors were investigated to examine the relationships between socioeconomic and proximate determinants and pregnancy outcomes.

Data were collected on a cross-sectional basis from 215 women who gave birth at Western Regional Hospital, Pokhara, Nepal. Analyses revealed that, antenatal care utilisation, and nutritional intake were related to socioeconomic determinants such as income, residence, parental

qualifications, maternal occupation, ethnicity and religion. Furthermore, socioeconomic factors explained the greatest variance in birth weight, followed by general health behaviour and obstetric condition variables. The addition of reproductive health and behaviour variables did not add significantly to the explanation of variance in birth weight. Obstructed labour was studied in terms of length of labour, and the result revealed that, mode of delivery (normal or instrumental), gestational age, mother's age, and age at marriage were significantly related to the length of labour. Maternal mortality of 14.15 and perinatal mortality of 29 per 1000 live birth were reported during the study period of two months.

Findings are discussed in relation to previous literature. Limitations of the study and implications for future research are also discussed. Findings suggest that, the maternal and child health care services in the Western Region of Nepal need improvement. Strategic development of health care services with cost-effective and quality health services through primary health care and the Safe Motherhood programme are found to be a necessity for this region.

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# CHAPTER ONE

## BACKGROUND TO STUDY

This chapter begins with an introduction to the area under study. A situational analysis of maternal and child health in Nepal is provided followed by a brief description of the current structure of maternal and child health services. The aims for the study are introduced and the theoretical framework for the study is discussed.

### 1.1 Introduction

Maternal reproductive health is an essential component of child survival. However, human development has largely been seen in the context of child survival and development over the past decades. An important component of child survival, the health of the previous generation and their reproductive health, especially that of the mother, is sometimes underestimated (Turmen, 1994). Reproductive health determines the wellbeing of the mother, the foetus, the infant, and the child and in turn determines the health and reproductive capacity of the next generation's mothers (World Health Organisation (WHO), 1995). Thus, child development and survival, adolescent health, and the reproductive health of women, men, and families must be seen and addressed in its entirety.

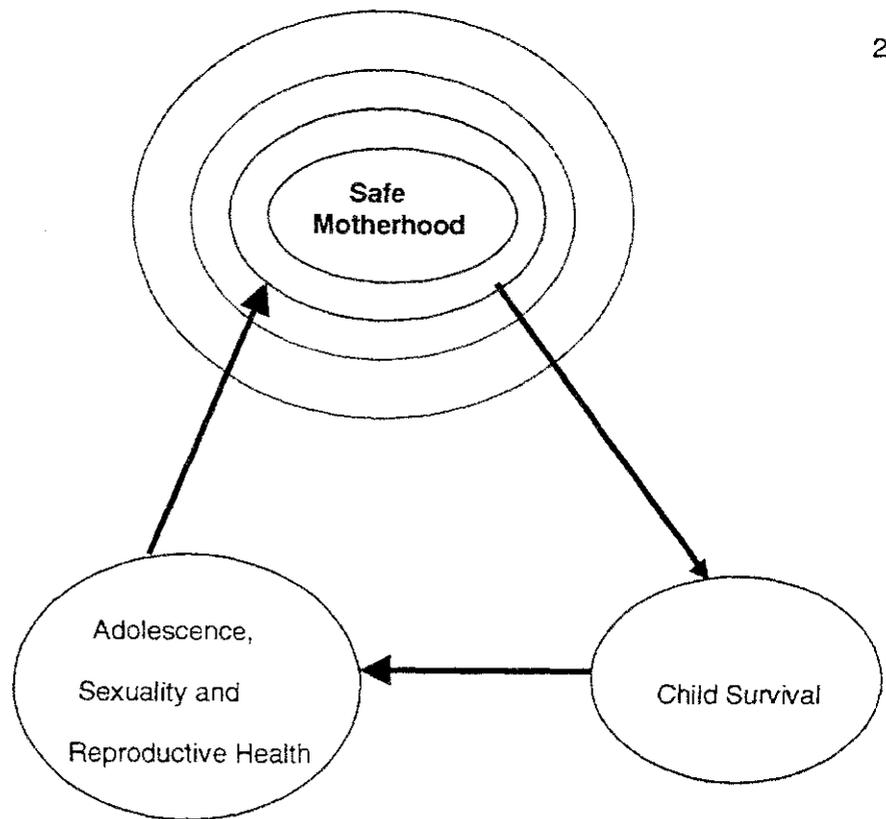


Figure 1: Human Development (Turmen, 1994:3)

Safe Motherhood<sup>1</sup> and reproductive health including the sexual and reproductive health of adolescents, lies at the centre of human development (Turmen, 1994).

Figure 1 shows the interrelation between safe motherhood, child survival, adolescence, sexuality, and reproductive health. Improvement in the reproductive health of mothers has a positive and multiple effect on the next generation.

Pregnancy and childbirth are unique events in the reproductive lives of women. Pregnancy is not only a time of great hope and joyful anticipation but may also be a time of fear, suffering, and sometimes even death. While

<sup>1</sup> Safe Motherhood: this is a programme designed to enable women to identify pregnancy, ensure care for prevention and treatment of complications, provide access to trained birth attendants and special care during emergency and after childbirth to avoid death and disability (Feuerstein, 1993).

pregnancy is a normal physiological process, it is associated with certain risks to health and survival both for the woman and the infant. These risks are present in every society and setting. In developed countries, they have been largely overcome by the provision of proper care during pregnancy and childbirth for all pregnant women (WHO, 1998a). In developing countries, most women do not have the privilege of access to care and support during pregnancy and each pregnancy represents a journey into the unknown from which many women never return (WHO, 1998a).

Social, cultural, economical and health systems also affect the wellbeing and survival of women during pregnancy and childbirth. Maternal and perinatal death can be largely prevented through educating women about healthy lifestyles and nutrition during pregnancy as well as by providing quality health services using trained staff, particularly at the critical time of birth (UNDP/UNFPA/WHO/World Bank, 1997)<sup>2</sup>. In Nepal, a developing country, women are discriminated against in terms of legal status, access to education, access to food, and access to relevant health care services (Tuladhar, 1996). Where women do not have access to such services, maternal, perinatal, and infant mortality rates are comparatively high (The Ministry of Health & UNICEF, 1996). Very few studies have been undertaken exploring the causes of high mortality in the Nepalese context. The present research will investigate the relationships between socio-economic factors, reproductive health and behaviour, general health and

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<sup>2</sup> UNDP- United Nation's Development Programme  
UNFPA- United Nation Federation of Parenthood Association  
UNICEF-United Nation's Children's Fund

behaviour during pregnancy and their relationship to pregnancy outcome (both maternal and foetal) in women delivered at Western Regional Hospital, Pokhara, Nepal.

## **1.2 Situational analysis: Maternal and child health in Nepal**

### **1.2.1 Women and girls in Nepal: Health seeking behaviour**

Women's image, status, behaviour, and their roles vary from culture to culture, and society to society. In developing countries, there is a sub-culture within the cultural display, where various representations of women exist ranging from traditional, illiterate, and uneducated to modern autonomous and educated. Furthermore, women's thinking, behaviour, status and roles are completely dependent upon the social class or community to which they belong (Bali, 1995) and these social factors can affect women's health-seeking behaviour.

Nepalese society is predominantly patriarchal, governed by Hinduism as a strong ideological force (UNICEF, 1996a). The growth, development and status of Nepalese children are shaped by social structure, class and value systems informed by the patriarchal tradition. Within this tradition, sons are considered the economic insurance against the insecurities of old age (UNICEF, 1996a). On the other hand, daughters are to be given away in marriage to care for her husband's parents and family. Nepalese girls face early marriage, that is, before the age of twenty (UNICEF, 1996a). Moreover, women's subordination is supported by traditional practices. For instance, the paying of a bride price by which men acquire the exclusive

right to the wombs of women (Medical Women's International Association, 1995). This practice implies that a married woman should be faithful to her husband, and in practical terms means a wife has no right to the regulation of her reproductive and sexual functioning. This in-turn delays decision making with regard to medical and obstetric health seeking behaviour.

Women's status can underly and shape their access to health services and may directly affect decisions and delays to seek care. For instance, studies on maternal death and its relation to women's status in ~~the~~ developing countries conducted in Nigeria, India, Ethiopia, Korea, and Tunisia (Thaddeus & Maine, 1994) show that women are often not able to decide on their own to seek timely care, awaiting decisions from senior members of the family, such as their spouse or their mother-in-law. Moreover, women's mobility is often limited because they require permission from their mother-in-law or spouse to travel away from home. This is a prominent cultural prescription in developing countries (Thaddeus & Maine, 1994). This cultural practice is common in Nepal too, both in rural and urban areas (Poudel, 1995). When women face obstetric complications, they tend to use only health care facilities available within their own community because of cultural restrictions. Often these obstetric care facilities are inadequate and such cultural practices increase maternal and perinatal mortality.

The socialisation of children during childhood can affect the development of levels of confidence and self-esteem, which in turn affects decision making abilities about health care matters (UNICEF, 1996a).

Practices of self-denial, self-effacement, gentleness, sacrifice, unassertiveness, and other so-called “feminine” qualities are common elements of girls' upbringing in Nepal (UNICEF, 1996a). Further, decision-making, opinion-formation, strength of expression, and assertion of needs is inherently discouraged in the socialisation process of girls. Most social interaction for girls is confined to the inside world of the home (Tuladhar, 1996). Besides economic dependency, this type of socialisation may force them to depend on their husband and his family, and seek decisions from others on their own health care. This may contribute to delay decisions on seeking health care during pregnancy and childbirth.

Women's status also interacts with the cost of treatment in the decision to seek care. The preference for sons that prevails in Asian countries, indicates that the consideration of cost in the decision to seek care may be gender biased. Hossain & Glass (1988), in a study in Bangladesh found that doctors were consulted three times as often for sons as for their daughters by parents. Further, purchases of drugs prescribed by physicians were approximately three times as frequent when the prescription was for a boy as when it was for a girl. Such discrimination is common in Nepal (Personal experiences).

Maternal mortality and morbidity have some of their origins in women's lives before pregnancy (Mahler, 1987). A study conducted in Asia (Glik, Parker & Hetegikamana, 1986) found that parents' health care behaviour and expenditure often reveal a preferred investment in their son's health especially when resources are scarce. Further, they found that even where

health care and transportation costs are free of charge, parents use services more frequently for ill boys than girls. Thus, the low value placed on girls adversely affects their utilisation of health services, a factor, which has been generally overlooked. Many Nepalese parents invest in the education, nutrition, and health care of their sons rather than daughters (UNICEF, 1996a). Nutritional deficiency in girls, such as insufficient intake of vitamins and minerals including calcium, iron and vitamin 'D', in their childhood and adolescence may result in contracted pelvis, obstructed labours and chronic iron deficiency and often death due to severe haemorrhage during childbirth. Royston & Armstrong (1989), however concluded that the impact of gender discrimination on maternal mortality has been largely ignored, and has been subsumed within the general issues of poverty and underdevelopment which is assumed to put everyone at equal disadvantage in health terms.

In many developing countries, women consider childbearing as their only means of gaining status (Thaddeus & Maine, 1994). Therefore, women often find themselves in a paradoxical situation. They take high fertility as a means of giving birth to more male babies hoping to improve their status, but this increases the risk of maternal death. In developing countries, even where women are economically independent, women's pride and prestige is determined primarily through their roles as mothers (Van de Walle & Ouaidou, 1985). Thus, pregnancy and childbirth award women status in developing countries.

A study conducted by Sargent (1985) in Benin showed that birth represents a rare opportunity for women to demonstrate their courage and

bring honour to their family and their husband by self-possessed conduct<sup>\*</sup> during pregnancy and childbirth, which has direct implications for recognising complications and deciding to seek care without delay. In Nepal, self-possessed conduct during pregnancy and childbirth is expected by the family, especially by mother-in-laws (WHO, 1998b). This practice is transmitted generation to generation, from mother-in-law to daughter-in-law and so on.

Thus, this type of practice increases the risk of maternal death and disability. These cultural and behavioural practices are more apparent in Indo-Aryan ethnic groups (Bhramin and Chettri), comprising the majority of the Nepalese population (UNICEF, 1996a). Even among the Tibeto-Burman communities, there is an increasing trend towards the adoption of Indo-Aryan values and norms, which dominate society (UNICEF, 1996a).

In summary, the health of both men and women depends on a combination of genetic, environmental, and healthcare factors. However, socio-economic, cultural and political environments differ in every society, and the chances of women being affected by these factors are often high (Medical Women's International Association, 1995). In developing countries, women are discriminated against in terms of legal status, access to education, access to food and access to relevant health care services from birth to adulthood. The combinations of factors such as limited power over reproduction, poor general health, gender discrimination, and inadequate perinatal practices expose Nepalese women to high-risk pregnancies, perinatal complication and sometimes death.

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\* Self-possessed conduct: having control of one's emotions and behaviours.

### 1.3 The structure of maternal and child health services in Nepal

The population of Nepal is 18.5 million and mothers and children constitute 64% of the total population (Census, 1996). Their survival is closely related to the availability and use of basic maternal health services. Maternal, perinatal, neonatal, and infant mortality are indices of the quality of maternity care services in any given country (Thapa, 1996; The Ministry of Health & UNICEF, 1996; WHO, 1996b).

Nepal's health policy principally relates to the Primary Health Care (PHC) services including maternal and child health as well as family planning. Health care facilities such as Sub-Health Posts (SHP), Health Posts (HP), and Primary Health Care (PHC) centres in various parts of the country have been established to make health care services accessible to rural populations. Nepal is predominantly rural, with 91% of the population living in rural areas (The Ministry of Health 1996a; UNICEF, 1996a; Census, 1996).

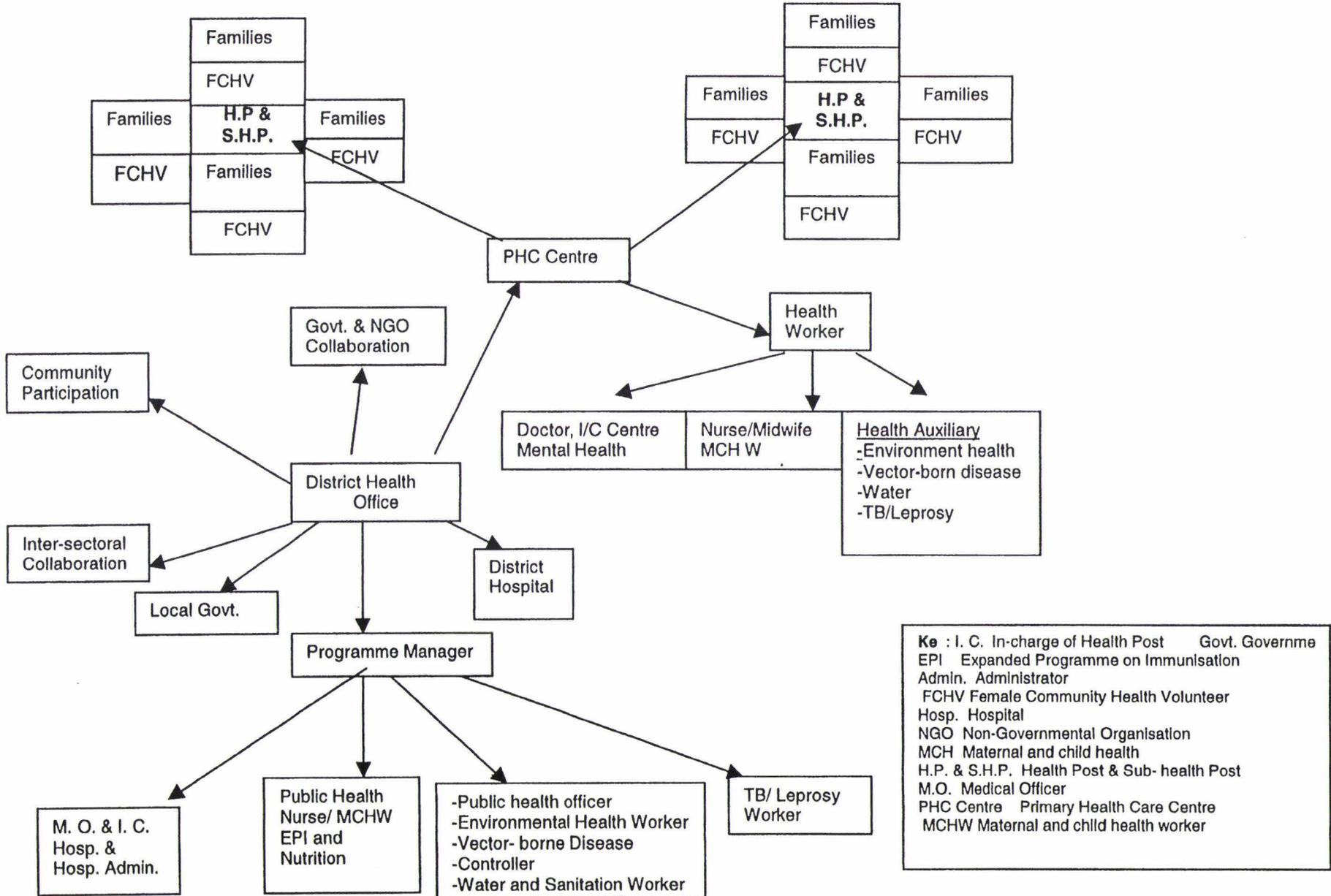
Recently, attention has been drawn to Safe Motherhood Initiatives. The Ministry of Health of Nepal gives priority to the Safe Motherhood Programme to provide quality maternity care (The Ministry of Health & UNICEF, 1996). The major challenges of Safe Motherhood initiatives are the reallocation of available resources and further review of existing health policies to improve the health of girls and women in particular. In Nepal's revised health policy, attempts have been made to include a Safe Motherhood Programme in each level of the primary health care delivery system. Therefore, the Safe Motherhood Programme becomes a major component of primary health care in Nepal. Within the hierarchy of the health care

delivery system, attempts have been made to establish basic maternity and neonatal health care services, which help to meet the reproductive needs of women throughout the country. Figure 2 shows the prescribed coordination patterns of the health care delivery system within Primary Health Care, developed by the World Health Organisation (WHO, 1979). Nepal used this pattern to establish good referral systems from each community level to each district level to meet reproductive health needs during pregnancy and delivery.

### **1.3.1 Safe Motherhood Programme in Nepal**

Safe Motherhood has become the focus of health care planning since the Nairobi conference, Kenya in 1987. This is a programme designed to enable women to identify pregnancy, ensure care for prevention and treatment of complications, provide access to trained birth attendants and special care during emergency and after childbirth to avoid death and disability (Feuerstein, 1993). Therefore its aim is to reduce the maternal mortality rate by at least half by the year 2000 (WHO, 1993). The Ministry of Health of Nepal set the aim of reducing the maternal mortality rate from 539 to 400 per 1 000 000 live births by the end of 2002 (Western Regional Health Service Directorate, 1997). It also aims to improve the status of women by bringing about attitudinal, behavioural, and societal changes in women's health concerns (The Ministry of Health, 1996a).

**Figure 2: Level of Primary Health Coordination Pattern**



This aim will be met by promoting inter-sectoral collaboration; strengthening and expanding basic maternity care services, including family planning, at all institutional levels; raising women's status to enable them to seek care and use services; and conducting research on Safe Motherhood practices (see Appendix one for a description of the Safe Motherhood Programme of Nepal). The implementation of the Safe Motherhood Programme will involve close cooperation and coordination of many activities within the Ministry of Health and other related ministries, donors, and non-governmental organisations (The Ministry of Health, 1996a).

### **1.3.2 The implementation of Safe Motherhood strategies**

The implementation of Safe Motherhood strategies is difficult in Nepal for a number of reasons. Firstly, there is the necessity for the reestablishment and reallocation of human and material resources for the Safe Motherhood Programme within the existing primary health-care delivery system. Secondly, operating theatres at district hospitals (first level referral centres) are not functioning due to lack of resources (The Ministry of Health & UNICEF, 1996). Thirdly, services are often inadequate in the sense of quality, uniformity, and accessibility in rural areas, because health care providers' (VHW/MCHW) lack the appropriate knowledge and skills to meet the needs of pregnant women.

Although, the capabilities of the various health carers differ according to their categories, most of them who work at grass root level are unable to respond women's needs appropriately (The Ministry of Health & UNICEF, 1996). The trained female health workers such as Auxiliary Nurse Midwives

(ANM) and Staff Nurses hesitate to work away from their family due to cultural barriers and lack of security. In Nepal it has not been usual for unmarried women to live and work away from their own area. Under the new Safe Motherhood Initiatives women posted to a rural area, other than their own, may have difficulty being accepted by the local people.

Positions for trained health workers, especially doctors, health assistants, and staff nurses remain unfilled in district hospitals due to topographical difficulties, lack of basic resources for functioning, and again the unwillingness on the part of health personnel to stay away from urban centres (The Ministry of Health & UNICEF, 1996). Health services in some areas of Nepal are less than ideal. Sometimes drugs run out before the new supply arrives or equipment breaks down and cannot be repaired (The Ministry of Health, 1996b).

Finally, the biggest problem in implementing the Safe Motherhood Programme is the difficult terrain, with its lack of infrastructure such as roads and communication systems. Many women live in remote rural areas, sometimes a day's walk or longer from antenatal services, family planning facilities, hospitalisation for caesarean section, and blood transfusion (The Ministry of Health, 1996b).

Three main types of delay contribute to the many maternal deaths in developing countries (Thaddeus & Maine, 1994) including the rural part of Nepal (The Ministry of Health, Nepal, 1996b). These causes of delay are:

- Delay in seeking care. Families and other community level health workers do not recognise the severity of the complications and believe

that by just waiting a while everything will be fine. If the severity does not abate, then the decision is too late to seek care;

- Delay in arriving at a facility, which can provide care. Long distances, bad weather, difficult roads, no transportation, and the unwillingness of transporters (porters, drivers) can cause this delay. Delay may also be caused by an inadequate health facility (staff and equipment) not recognising the severity of the health problem or being unable to treat it, and failing to arrange for timely referral ; and
- Delay in starting treatment, when an appropriate facility has been reached. Shortage of drugs, absence of staff, operating theatres not ready or simply staff not reacting with sufficient urgency can cause delays.

These three types of delays may discourage people from using health services and reduce faith in health services in the future. Although it would be ideal if all district hospitals of Nepal could provide comprehensive essential obstetric care and all Health Post and Health Centres could provide basic obstetric care according to Safe Motherhood guidelines, this is still not possible (The Ministry of Health, 1996b). The Safe Motherhood Programme of the Ministry of Health of Nepal is working in ten districts with financial and technical support from bilateral and multilateral donor agencies to make comprehensive essential obstetric health care available in district hospitals (The Ministry of Health, 1996b).

### **1.3.3 Summary**

Good maternal health is a prerequisite for a healthy mother and baby as well as a healthy family. The mother's health is affected by the social, cultural, economical and health care delivery systems of the country in which she lives. In Nepal, most women do not have access to basic health services. In addition to lack of health infrastructure, transportation and communication, other factors such as gender inequality, illiteracy, and cultural constraints delay decisions to seek care even in the case of complications during pregnancy and childbirth. Since the last decade, attention has been drawn to the Safe Motherhood Programme. This is a cost-effective way to fulfil mothers and infants health needs in developing countries. In Nepal, the Safe Motherhood Programme is included within the existing Primary Health Care delivery system.

## **1.4 Theoretical framework**

The present research adopts and applies two theoretical models. Firstly, an analytical framework for the study of child survival in developing countries (Mosley, & Chen 1984; Gortmaker & Wise, 1997; Census, 1996) and secondly, an analytical model of maternal mortality (Maine, 1995).

### **1.4.1 Analytical framework for the study of child survival in developing countries**

Infant and child mortality rates are relatively higher in developing countries than developed countries (Mosley & Chen, 1984). Parental characteristics such as education, knowledge of appropriate treatments, and lower fertility are important determinants of child health and in particular,

women's education influences health-seeking behaviour during pregnancy and childhood (Mosley & Chen, 1984). The amount and type of education a woman has received, helps to develop awareness of utilisation of services, and is related to nutrition, hygiene, and immunisation (Mosley & Chen, 1984; Raghupathy, 1996). Social science research on mortality has traditionally focused on the association between socio-economic status and levels and patterns of mortality in populations (Mosley & Chen 1984). Correlations between mortality and socio-economic characteristics are used to generate causal inferences about mortality determinants (Mosley & Chen 1984). Income and maternal education are two commonly measured determinants of child mortality in populations of developing countries. However, medical research focuses primarily on the biological processes of diseases and less frequently on mortality (Mosley & Chen 1984). While both the social and medical sciences have made major contributions to the understanding of child mortality in developing countries, the differing concerns and methodologies have set apart such knowledge and constrained the development of potentially more useful approaches to understanding child survival. Therefore, a new analytical approach is needed to incorporate both social and medical science methodologies into a coherent analytical framework of child survival.

According to Mosley & Chen (1984, p. 32), the combination of social and medical sciences, or the proximate determinant approach for the study of child survival, is based on the following premises:

- In an optimal setting, over 97 % of new-born infants can be expected to survive through the first five years of life.

- Reduction in this survival probability in any society is due to the operation of social, economic, biological and environmental forces.
- Socio-economic determinants (independent variables) must operate through basic proximate determinants that in turn influence the risk of disease and the outcome of disease processes.
- Specific disease and nutrient deficiencies observed in a surviving population could be viewed as biological indicators of the operation of the proximate determinants.
- Growth faltering and ultimately mortality in children (the dependent variable) are the cumulative consequences of multiple disease processes (including their bio-social interactions). Only infrequently is a child's death the result of a single isolated disease episode.

The key to the model is the identification of a set of proximate determinants or intermediate variables that directly influence the risk of morbidity and mortality. All social and economic determinants operate through the variables that affect child survival. The proximate determinants may be grouped into five categories: (see Figure 3)

- Maternal factors such as age, parity, and birth interval. Each of the maternal factors will exert an independent influence on pregnancy outcome and infant survival through its effects on maternal health.
- Environmental contamination: air, food, water, fingers, skin, soil, inanimate objects, and insect vectors. Environmental contamination refers to the transmission of infectious agents to mothers and children through these different factors.

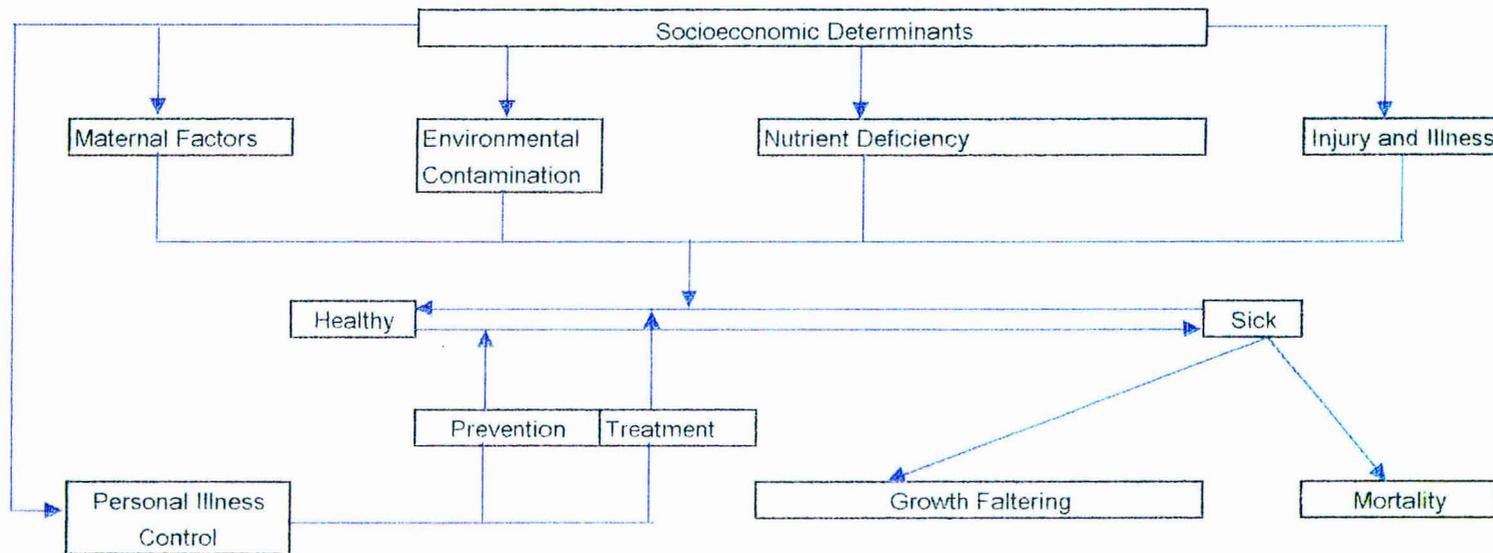


Figure 3: Proximate Determinants' Framework by Mosley & Chen (1984)

- Nutrient deficiency: calories, protein, and micronutrients (vitamins and minerals). Nutrient deficiency relates to the intake of the three major classes of nutrients: calories, protein, and micronutrients.
- These factors influence the survival of children and mothers. Maternal diets and nutrients available during pregnancy may influence the quantity and nutrient quality of breast milk during lactation.
- Exposure to illness and injuries: accidental, and intentional. Personal illness control: preventive measures, and medical treatment. As a component in personal illness control, healthy individuals take preventive measures to avoid diseases. These include traditional behaviours like taboos, and modern practices. These are important factors in the practices and quality of care during pregnancy and childbirth. The category of medical treatment relates to measures taken to cure diseases after they become manifest.

#### **1.4.2 Analytic model of maternal mortality**

Maternal mortality is one of the major public health-problems in many developing countries. Mosley & Chen (1984) describe a comprehensive child-survival model, whereas this second model (Maine, 1995) describes an analytical model of maternal mortality (see Figure 4). Both of these models are based on the presumption that all social and economic determinants operate through a common set of biological or proximate (intermediate) determinants, to exert an impact on maternal and child mortality.

Distance Factors

Socioeconomic Status

Intermediate Factors  
(Proximate Determinants)

Reproductive Health  
and Behaviour

Health Status

Access to  
Health Services

Unknown Factors

Outcomes

Pregnancy



Complications



Maternal  
Mortality

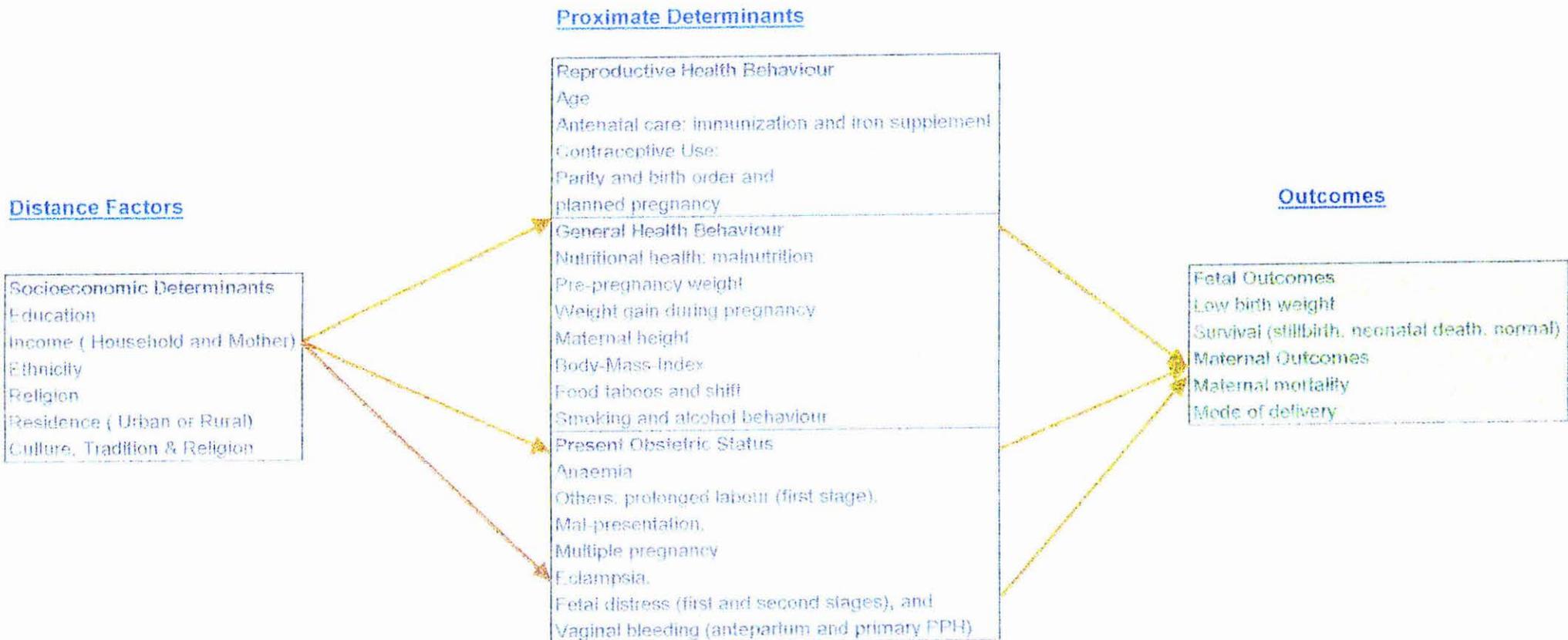
Figure 4: Analytic Model of Maternal Mortality by Maine (1995)

Maine's (1995) analytical model of maternal mortality proposes that, improving the socio-economic status of women can reduce maternal mortality. This concept is quite similar to Mosley and Chen (1984). Firstly, socio-economic status seems to have an effect on at least one of the intermediate factors: health and reproductive health behaviour, health status, and access to health services. Secondly, the chain of effects must be extended to one or more of the three outcomes in the model: pregnancy, development of complications, and death and disability. This model also addresses the direct or indirect and intermediate causes of maternal mortality as follows:

- People's risk of dying is strongly influenced by the society they live in and their position within it. Mortality is higher in poor and disadvantaged groups than among the wealthy. This is true in the case of maternal mortality. Maternal mortality is higher in developing than developed countries. However, class differences will also affect mortality.
- Direct obstetric death is due to complications of pregnancy, delivery or the postpartum period, including abortion complications. An indirect death is due to existing medical conditions that are made worse by the pregnancy or delivery. These deaths are often due to malaria, hepatitis, anaemia or heart diseases.
- Intermediate factors include health and reproductive behaviours, and access to health services. Reproductive health and behaviours affect maternal mortality through health status, pregnancy, and complication. Different cultural barriers and socioeconomic factors, as described earlier influence the utilisation of health care services during pregnancy especially when complications arise. Reproductive health behaviours

such as extremes of maternal age, birth order and birth spacing increase the risk of maternal death. Access to health services for the mother during pregnancy is crucial. Sophisticated medical technology is not necessary for many cases but simple, quality health care should be provided to women who need it. However, access to information, financial factors, physical accessibility and availability of health services in the entire community will affect utilisation of health services by mothers and this will help to decrease maternal death. Maine (1995) also includes as intermediate factors those factors that affect maternal outcome, which are indeterminable (i.e. unknown factors).

In summary, socio-economic factors are considered as distance factors in both the analytical model of child survival (Mosley & Chen, 1984) and maternal mortality model (Maine, 1995). Social and economical determinants affect the reproductive health and behaviour of women (biological or proximate / intermediate determinants) which consequently may lead to unfavourable pregnancy and obstetric conditions that influence infant and maternal outcome. Based on these two models, a framework for understanding factors which affect maternal and infant outcomes in Nepal is proposed (see Figure, 5).



**Figure 5: Modified Framework for Present Research Based on Mosley & Chen (1984) and Maine (1995) Models**

## 1.5 Research aims

### Aims of the study

Child health and survival fully depend upon the mother's reproductive health, not only during foetal life but also throughout childhood. Children are the future of a nation and they are important human resources for sustainable development. The reproductive health of the mother should, therefore, be a matter of global concern. In the international arena, various studies have been conducted on child survival and reproductive health, and attention has been given to women's health, their status, their empowerment, and improvement of their legal status. However, in Nepal, only a limited number of descriptive studies have been conducted to assess the situation at both national and regional levels and these have not explicitly addressed the affect of reproductive health behaviour on pregnancy outcome (UNICEF,1996a; Demographic Health Survey, 1996). Therefore, the overall research aim of the present study is to investigate the relationships between distance (socio-economic) factors, and proximate determinants and their relationships to foetal and maternal outcomes in the western region of Nepal. Specific aims include:

Aim One: To investigate socio-economic determinants and their relationships with selected proximate determinants (see Figure 5).

Aim Two: To examine the relationships between selected socio-economic and proximate determinants and foetal outcomes (low birth-weight, perinatal mortality) (see Figure 5).

Aim Three: To examine the relationships between selected socio-economic and proximate determinants and maternal outcomes (mode of delivery and maternal mortality) (see Figure 5).

The proposed study will contribute to the description, and understanding of the existing situation for maternal, and child health in Nepal. This study will also contribute to the contemporary research on maternal and child health.

This thesis is divided into five chapters. In the **first chapter**, background information has been given briefly covering health seeking behaviours, and health policies in the area of maternal and child health in Nepal. A framework for the present research is discussed and research aims are presented. In the **second chapter**, a review of the relevant literature on socio-economic determinants (distance factors) and proximate determinants (maternal factors), and their relationships with pregnancy outcomes is presented. **Chapter three** details the research design and methodology. The **fourth chapter** presents the findings of the present study. Finally, the **fifth chapter** discusses the results in light of the research aims and previous research and presents conclusions.