MATERNAL HEALTH CARE UTILIZATION AMONG TRIBAL WOMEN IN EASTERN-MID-INDIAN TRIBAL BELT – AN ANALYSIS OF NFHS-2 DATA (1998-99)

DISSERTATION SUBMITTED TO JAWAHARLAL NEHRU UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE

OF

(MASTER OF PHILOSOPHY)

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CERTIFICATE

I, **VEENA PRABHA TIRKEY,** certify that the dissertation entitled **"MATERNAL HEALTH CARE UTILIZATION AMONG TRIBAL WOMEN IN EASTERN- MID-INDIAN TRIBAL BELT – AN ANALYSIS OF NFHS-2 DATA (1998-99)"** submitted by me for the degree of MASTER OF PHILOSHOPY is my bonafide work and may be placed before the examiners for evaluation.

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ACRONYMS

ANC	Ante – Natal Care
ANM	Auxiliary Nurse Mid- wife
IFA	Iron and Folic Acid tablets
IIPS	International Institute for Population Sciences
MCH	Maternal and Child Health
MMR	Maternal Mortality Rate
NFHS	National Family Health Survey
OBC	Other Backward Classes
RC	Reference Category
RCH	Reproductive and Child Health
RTI	Reproductive Tract Infection
STI	Sexually Transmitted Infection
SC	Scheduled Caste
ST	Scheduled Tribe
TBA	Traditional Birth Attendant
TT	Tetanus Toxoid

माँ

माँ,
तुम अपने नन्हें से दिल में,
इतना सारा दर्द कैसे संभाल लेती हो?
सारा दर्द खुद पीकर
दूसरों की खुशी का कारण कैसे बन पाती हो
कष्टों के पहाड़ इन निर्बल कंधो पर ढोकर
कभी तुमने उफ़ नहीं किया
क्या तुमने इसे प्रकृति की
नियति समझकर सहने की अनिवार्यता मानकर
या फिर भाग्य का लिखा मानकर सह लिया?
(कर्मवादी होते हुए भाग्यवादी बनकर)

-Bladislav Volko
(Translated by - Sharda Yadav)
source: सार–संसार, Oct. - Dec. 2006

The above piece of poetry by Bladislav Volko immaculately expresses the disheartening conditions of 'mothers' whose contributions in providing flow and form to the eternal cycle of life remains highly undervalued. She exhibits immense courage in facing all odds of life but succumbs to a classic case of 'self-denial' with a resigned submission to the twists and turns of fate when it comes to save and care for their own life.

CHAPTER 1

INTRODUCTION

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INTRODUCTION

1.1 INTRODUCTION

STORY OF LAXMI-

Laxmi and Chandu, a poor and illiterate couple lived with their only child in a 'kuchha' house in a remote village of Orissa. Laxmi, married to Chandu at the age of 17, had her first pregnancy two years later. The couple was happy when she conceived for the second time at the age of 25. During this pregnancy Laxmi went twice to the local pharmacist nearby who gave tetanus injections and some tonics. No health worker ever visited her nor did she go to any doctor. Chandu too believed that taking tonics and milk, and light household work ensured smooth delivery, and that there was no need for checkups or hospital delivery.

Laxmi had no problems during her pregnancy. A "Dai" conducted her delivery at home. Immediately after the delivery Laxmi started bleeding profusely, and they thought it was normal and would stop. But even after one hour when the bleeding did not reduce, Chandu arranged for a trolley to take her to the additional PHC. It took them 15 minutes to reach there and found the doctor absent. They went back to the pharmacist and the treatment provided proved too late, for Laxmi died within minutes. Chandu felt that she could have been saved if taken to district hospital for delivery.

The above story shows a picture of negligence of women's health during the child birth. Every year more than 20 million women experience ill-health as a result of pregnancy and more than 500,000women are estimated to die as a result of causes related to pregnancy and childbirth (WHO, 2001). Over 99 percent of these deaths take place in developing countries. In India the maternal mortality ratio at the national level is estimated to be 407 deaths per 100,000 live births by SRS, (1998). According to the estimates of NFHS-2 (1998-99) it is 540 deaths per 100,000 live births. The global maternal death watch also shows that every minute 380 women become pregnant, 190 face an unplanned and unwanted pregnancy, 110 of these women experience pregnancy related complications, 40 have an unsafe abortion and one woman die due to pregnancy related complication (Singh A. 2006).

The major causes of these deaths have been identified as hemorrhage (both ante and postpartum), toxemia (hypertension during pregnancy), anemia, obstructed labor, puerperal sepsis (infections after delivery) and unsafe abortion **(Appendix-1).** But this is worth to be noticed that most of the maternal deaths are avoidable if pregnant women receive adequate antenatal care during pregnancy, have deliveries in hygienic conditions with the assistance of trained medical practitioners and receive appropriate and timely postpartum care. The WHO estimates suggest that 88-98% of pregnancy-related deaths are avoidable (1994). Good antenatal care and emergency obstetric care are fundamental to decreasing fatalities from complications (Royston and Armstrong, 1989; Maine et al. 1994). Hence, providing quality health care during and after labour and delivery is the single most important way of saving the lives and preserving the health of mothers and babies.

The provision of special care for women during pregnancy through the public health services was a relatively late development in modern obstetrics. 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. The importance of maternal health services in reducing maternal and infant morbidity and mortality has received increasing recognition since the Cairo International Conference on Population and Development (ICPD) held in 1994. It emphasized the need for appropriate health care services that will enable women to go safely through pregnancy and childbirth and produce a healthy infant (ICPD, Cairo, 1995).

The emphasis on maternal health is important because a healthy mother can give birth to a healthy child. And if a mother is aware of her own health, she will be more aware of her child's health. The motherhood initiatives developed in response to the high rates of maternal mortality and morbidity, most of which are preventable. Health planners have been constantly making efforts for improving maternal and child health services and as a result various programmes and projects have been designed and implemented. There has been increasing interest on the part of government and international agencies in improving maternal and child health in poor countries. The government has been trying hard to improve

the maternal health conditions in India too. One of the major goals of Family Welfare Programme in India is to reduce the maternal mortality and morbidity. Specifically the programme aims at providing essential obstetric care during the entire period of pregnancy, safe delivery, safe abortions as well as providing treatment for RTI/STI cases. The government of India took measures to strengthen the MCH (maternal and Child Health) services as early as the first and second Five Year Plans (1951-56 and 1956-61). To improve the provision of maternal health services the ministry of Health and Family Welfare of India introduced Child Survival and Safe Motherhood Programme in 1993 by integrating several key child survival interventions with safe motherhood and family planning activities. Under this programme the regional institutes of Maternal and Child Health services have been established in states where infant mortality rates were high. The programme aimed to provide a minimum of three antenatal check ups to all pregnant women and universal coverage of tetanus toxoid immunization and iron and folic acid supplements. The check ups were designed to encourage women with advice on dietary intakes and requirements during the pregnancy and to encourage women high risk pregnancies to utilize institutional facilities for delivery. The Child Survival and Safe Motherhood programme continued the process of integration by bringing together several key child survival interventions with safe motherhood and family planning activities. In 1996, safe motherhood and child interventions health services were incorporated into Reproductive and child health Programme (RCH). Reproductive and Child Health (RCH) Programme (first phase 1997-03, second phase from 2003) aims at reduction of maternal and infant mortality, creation of awareness about rights of population in health care and improvement in the health care delivery systems. Maternal Health Programme along with efforts for reducing maternal mortality and morbidity include the promotion of safe deliveries in institutions and at home. A large number of deliveries in rural and remote areas are conducted at homes. Under the Reproductive and Child Health Programme, the birth attendants are being trained for conducting clean deliveries.

However in India the MMR stands at a high of 540 per one lakh live births and despite the efforts made over the last decades, its status continues to remain at the same level. In India, utilisation of basic health services has remained poor. The reasons may include low levels of household income, illiteracy and ignorance, and traditional attitudes to health care. Despite

the benefits of maternal health care, many women in India do not receive pre-natal care at all, and the care that is received is often characterized by an insufficient number of visits timed late into the pregnancy (NFHS-1, 1992-93). Furthermore, the delivery care utilized in India is dominated by home births either in the natal or the marital household. Hence, high risk pregnancies are often not identified, obstetric histories are ignored, opportunities for transmitting family planning messages are missed and important information on child nutrition and health care is not disseminated to a large proportion of mothers; and thus causing a high maternal mortality ratio.

The utilization of maternal health care is affected by various socio-economic determinants. According to National Health Policy Report 2002 social cultural and economic factors continue to inhibit women from gaining adequate access even to the existing public health facilities. This handicap does not merely affect women as individuals; it also has an adverse impact on the health, general well being and development of the entire family particularly children. It has been noted that women along with the other under privileged groups are significantly affected due to the disproportionately low access to health care. This leads to a need of the study about the factors causing handicap in the proper access to health care facilities for women.

The status of women, the relatively low level of female education, economic dependency, lack of access to services, are the factors impacting on the utilization of maternal health care. In Indian context there are many hindrances for women to receive the proper maternal health care which bring the lives of the mothers into stake. In a developing society the health of the women has not been given enough importance. In patriarchal societies like India, the low status of women further contributes to the invisibility and low importance to the maternal health care. In such societies the maternal deaths are seen as individual misfortune rather than as an event that merits public concern. Women's health is also related to the socio-cultural practices in the country. Women continue to carry the heavy burden of work both within and outside the house, follow the norm of eating last, have limited access to and control over resources, both tangible and intangible, and decision-making powers within the household. Moreover there are various complex norms and beliefs in the society regarding

marriage, pregnancy and child birth. A pregnant woman has to follow a number of taboos and restrictions in the movement, activities and food habits. These have adverse effects on the utilization of medical maternal health care services. Wrong guidance from others specially the elders and powerful illiterates and the superstitions put hindrances for the proper utilization of maternal health care even in front of medical and paramedical workers because these beliefs and superstitions are difficult to break.

The study of maternal health care utilization in the country like India is very important which is experiencing such high maternal mortality and where unsafe motherhood is still a reality. Despite the benefits of MHC, many women in India do not receive pre-natal care at all, and the care that is received is often characterized by an insufficient number of visits timed late into the pregnancy (NFHS 1992-93). India accounts for 19 per cent of all live-births worldwide, and for as many as 27 per cent of all maternal deaths. (Maita, 2001, p no.7) According to WHO-UNICEF the intake of iron and folic acid tablets by pregnant women in India is inadequate (WHO-UNICEF, 1992). The NFHS-2 report also reveals that a sizeable proportion of births (34.6 per cent) were of the mothers who did not receive any antenatal care. In India most of the deliveries take place at home. But in case of complications during pregnancy and child birth even trained TBAs or traditional midwives cannot do much at home, unless they are backed by trained obstetricians and gynecologists. Professional help is not available to most women at the time of delivery which increases the risk factor. This shows the importance of institutional delivery or even at home, some trained health professional should be assisting the delivery. The importance of postnatal period is poorly understood. Urgently needed is the greater insight into underlying risk factors which are the constraints for women's access to maternal care and what kind of interventions can be designed to respond to these needs.

India is committed to the goal "health for all" and in the last four decades, a wide network of primary health centers and sub-centers have been created. Yet India is far away from this goal. Many surveys as well as NFHS-1 and NFHS- 2 have provided ample evidence to show that either the services do not reach the disadvantaged section of the society or people from those sections do not utilize the available services (Roy, Kulkarni and Vaidehi, 2004). Apart

from economic condition, the social hierarchy or the system of social stratification existing in the society is likely to influence the health behavior of the individual. Social stratification system determines the living conditions, privileges, obligations and cultural traditions surrounding the life of a person which in turn affects his perceptions regarding health, knowledge of health care and accessibility to health resources (Kopparty 1994).

There is heterogeneity in the population of India. There are four distinct social groups are seen in India – Scheduled Tribes , Scheduled Castes, Other Backward Class and the 'Others' (mostly the upper castes). All these social groups are at different levels of socio-economic status. There is a wide social disparity seen in public health facilities and health standards in different parts of the country across different social groups. Moreover in spite of the various efforts made by the Government and other stakeholders to provide equal access to health care for women, there are striking disparities in the health status of women. The disparities are higher for those belonging to the SC/ST and minority sections of the society, those residing in the remote rural and tribal areas, backward states and districts. According to The national health policy 2002, access to, and benefit from, the public health system have been very uneven between the better – endowed and the more vulnerable society.

Indian tribal populations are widely recognized as marginalized and exploited members of society and for centuries have suffered intense and extensive social and economic discrimination. So special attention should be given for the study of that particular group to find out the factors for their bad health status and their lower access to public health service. There are around 427 tribal groups identified by Anthropological Survey of India. They are situated all over India. Even though they have a rich culture they are socio-economically disadvantaged and marginalized (BASU, 1993). They lived in isolation with nearness to nature hence, called 'son of soil'. Tribes constituted separate socio-cultural groups having distinct customs, traditions, marriage, kinship, property inheritance system and living largely in agricultural and pre-agricultural level of technology. Tribals practice different type of diagnosis and treatments during illness of person. The interference of supernatural agency is particularly strong in context of health and disease. The dependency on super naturals is responsible for the non-acceptance of modern medicine. Among tribals, interference of

supernatural agency is particularly strong in context of health and disease. The different deities and spirits are connected with various types of disease (Nagda B L., 2004). The health conditions in tribal society present an alarming situation. At the time of delivery, they prefer to cut the naval cord with a bamboo strip because according to them it is safer from infections. The medical facilities in the tribal areas are just rudimentary. There is no proper link road between the tribal villages and health centers. Tribal are economically poor and no provision of free medicine and treatment except some diseases like malaria, polio, diarrhea, T.B. etc.

The tribal communities in general and primitive tribal group in particular have been disease-prone in certain respects and have little access to basic health facilities, despite the fact that norms for establishing of sub-centres, primary health center and community health center have been relaxed for tribal areas. Their misery is compounded by poverty, illiteracy, ignorance of causes of diseases, hostile environment, poor sanitation, lack of safe drinking water and blind believes etc (Planning commission, 2001). The tribal women share with women of other social groups, problems related to reproductive health. The health status of tribal women is characterized by low life expectancy, high malnutrition and near absence of modern health facilities (Singh and Rajyalakshmi, 1993). The maternal mortality is high among various tribal groups. (Planning Commission, 2001) The chief causes of maternal mortality are unhygienic and primitive practices for parturition (Basu, 2000). Women do not get maternal health care during and after pregnancy as pregnancy is considered normal to a married woman (Mukherjee, 2006). Many tribal groups have their own indigenous tribal practices regarding maternal health care and thus the modern maternal health care services get neglected by them.

The purpose of the health services is to improve the health status of the population e.g. the care of the pregnant women will contribute to the reduction of maternal mortality and maternal morbidity. To be effective, the health services must reach the social periphery, equitably distributed, accessible at a cost the country and community can afford and socially accepted (UNICEF 2001). Health services can also be seen essential for social and economic development (Park K 2002, p n.18). So the present study is carried out as an attempt to assess

the social inequalities in the utilization of modern medical maternal health care services with special emphasis on the tribal women.

1.2 OBJECTIVES:

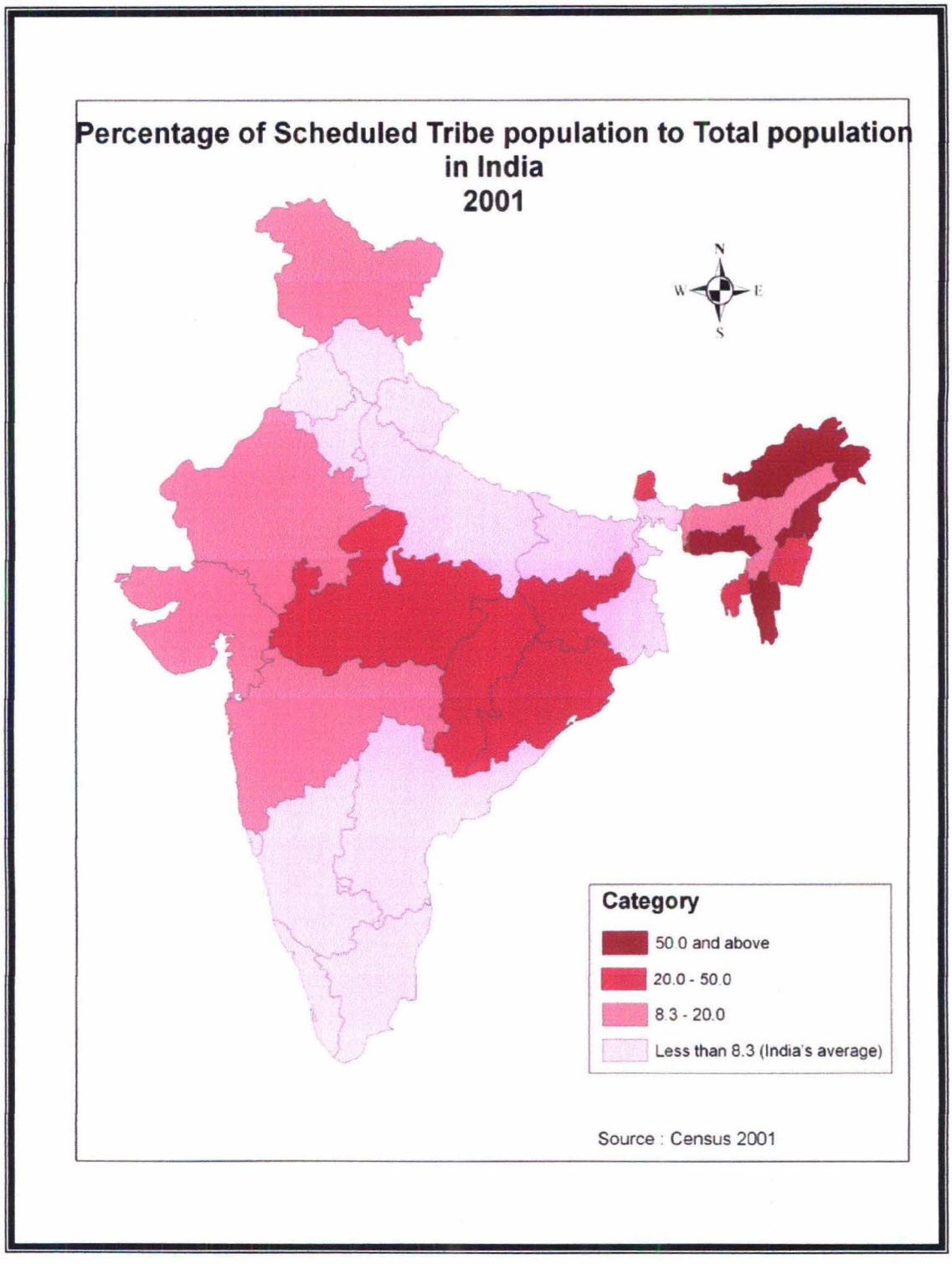
The study seeks to investigate the health status of tribal women in terms of maternal health. Any tribal study is incomplete when it is not compared with non tribal.
Following are the important objectives of the study---

- To study the social inequality in maternal health care utilization with special emphasis on tribal women and its comparison with other non –tribal social groups.
- To study the socio-economic and demographic factors affecting maternal health care utilization of tribal women and non tribal women.
- To study whether the membership of different social group affects the utilization of maternal health care or in other words to examine how far these inequalities are the result of caste/tribe per se or whether they can be attributed to differential socio-economic status of the individuals belonging to different caste/tribe categories.
- To study what constraints tribal women face in accessing quality maternal health care or the causes which compel a number of pregnant women to avoid the maternal care facilities.

1.3 STUDY AREA:

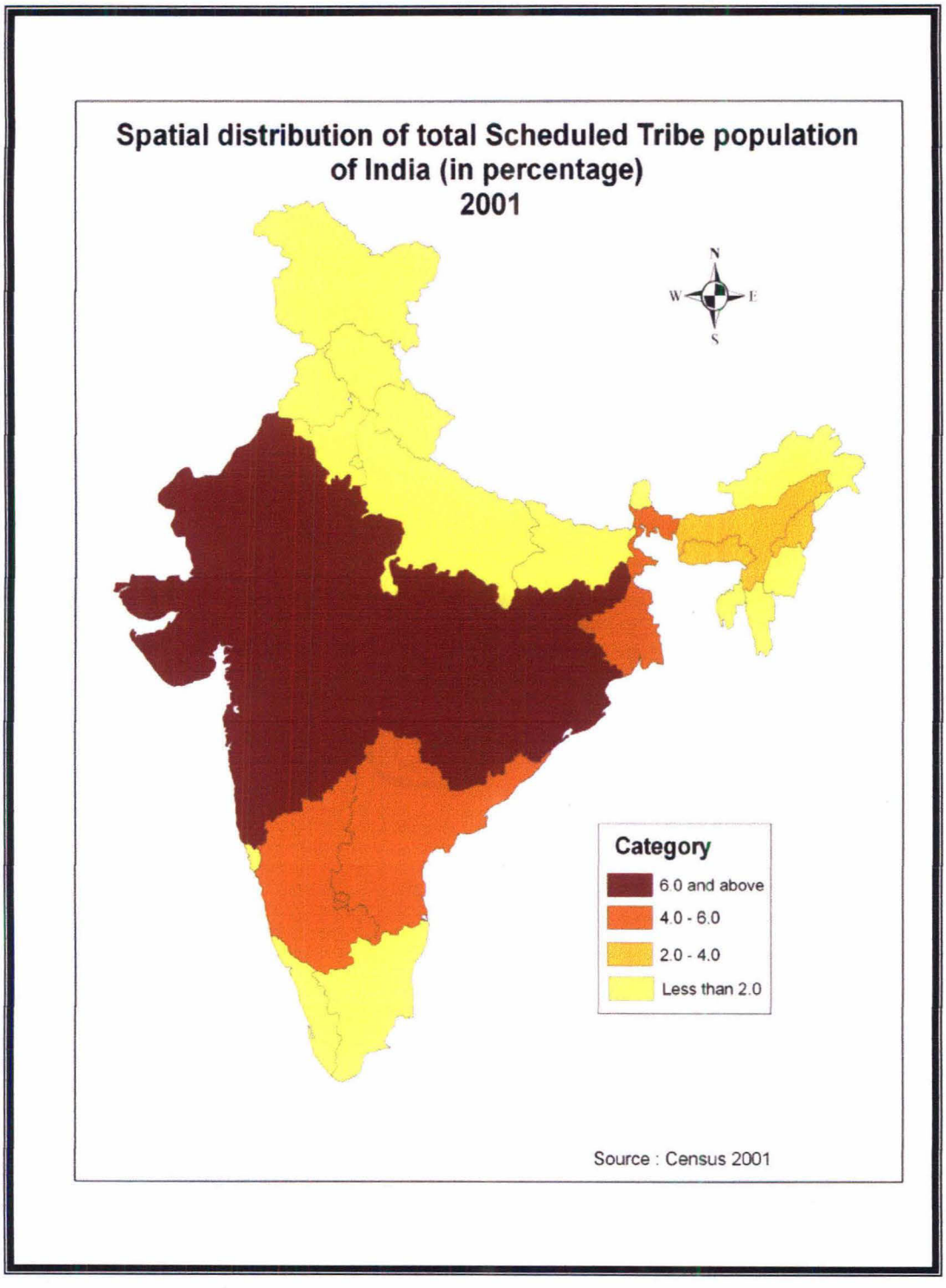
Tribal people constitute around 8.3 percent of the total Indian population. (2001 census).The tribal groups are scattered in different parts of India. The tribal situation in the country presents a varied picture. Some states like those of North-East have predominant tribal population, others those of West, east-central belt have high tribal concentration and still other areas like southern states have small percentage of tribal population.**(Map 1.1)** According to 2001 census the highest percentage of scheduled tribes population to total population is found in north-east states like Mizoram (94.5%), Nagaland (89.1%),

Map 1.1



Map not to scale

Map 1.2



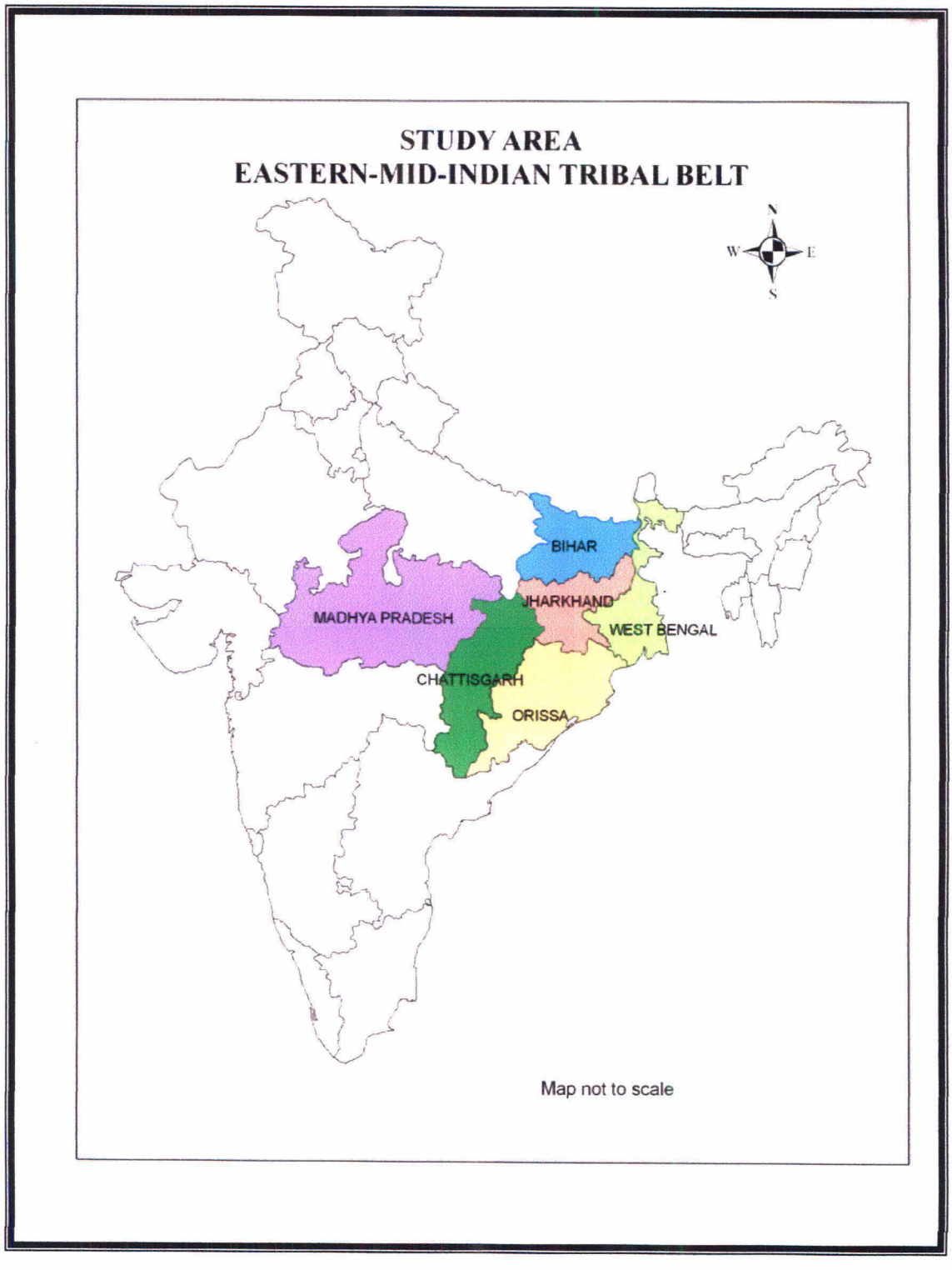
Map not to scale

Meghalaya (85.9%), Arunachal Pradesh (64.2%), Manipur (34.2%), & Tripura (31.1%) and also in Chhotanagpur belt in the states of Chhatisgarh (31.8%), Jharkhand (26.3%), Orissa (22.1%), Madhya Pradesh (20.3%), Bihar (0.9 %), West Bengal (5.5 %). **(Appendix 2)**. Though north-eastern states have higher percentages of scheduled tribe population to the total population of the state, but their contribution in the total scheduled tribe population of India is meager. The central part of India in a stretch from west to east has the largest chunk of total scheduled tribe population of India **(Map 1.2).**

For the present study the tribal belt of 'Chhotanagpur' region consisting of four states of east-central part of India – Bihar, Orissa, Madhya Pradesh and West Bengal have been taken. The Chhotanagpur plateau covers the southern districts of the state of Bihar (now mostly Jharkhand). The region spills over into the contiguous districts of neighboring states of West Bengal, Orissa and Madhya Pradesh. There appears to be a great confusion regarding its precise boundaries and areal coverage. The physiographic map of the national atlas depicts it as the plateau portions of Bihar combined with the eastern margin of Madhya Pradesh. The monograph on Economic regionalization of India, published by the census of India, while treating Chhotanagpur as a natural region groups it together with the northern hills of Orissa. According to S.P. Chatterjee, Chhotanagpur plateau covers the districts as Snathal Pargana and Purulia of West Bengal (Singh R L, 1968). The word Chhotanagpur is the corruption of "Chutia Nagpur". Chutia refers to a village on the outskirts of Ranchi which has at one time the seat of Nagabanshi chief who ruled over the central plateau. The region has an identity of its own which distinguishes it geographically, culturally, ethnically from the surrounding plains in the neighborhood. But there is the restriction of the data for the exact delimitation of the region .That is why the entire four states have been taken for the present study. This region has been termed as ***EASTERN- MID- INDIAN TRIBAL BELT***. The study area is shown in the **Map1.3.**

There are 46 tribal groups who are scheduled in Madhya Pradesh, 62 in Orissa, 30 in Bihar, and 38 in West Bengal **(Appendix 2)**. These four states together constitute about 46.5 percent of the total tribal population of India. (2001 census) Madhya Pradesh (14.5%) has the largest share of the total tribal population of India. But together with Chattisgarh its share

Map 1.3


STUDY AREA
EASTERN-MID-INDIAN TRIBAL BELT
N
W
E
S
BIHAR
JHARKHAND
WEST BENGAL
MADHYA PRADESH
CHATTISGARH
ORISSA
Map not to scale

will increase to 22.3 percent, as Chattisgarh alone comprises 7.8 percent of the total tribal population of India. Orissa (9.66 per cent) occupies third place, Jharkhand alone occupies fifth place with 8.4 percent but with Bihar its share is 9.3 percent. Chattisgarh alone occupies sixth place. And West Bengal eighth place with 5.23 percent. **(Appendix 2)**

These four states have been selected for the study because these states constitute significant large tribal and non tribal population which is necessary for the study of various attributes of tribals with comparison to non-tribal population. The states in North-East India also have high concentration of tribal population but the non tribal population is less in number which makes the tribal / non-tribal study difficult. Moreover these four states make one continuous tribal belt in India most popularly known as Chhotanagpur Tribal belt. This zone consists of plateau and mountainous belts the tribes living in this belt form a large assemblage of India's aboriginal population comprising 46 per cent of the total tribal population of the country. The important tribes inhabiting this region are—Oraon, Munda, Santhal, Ho, Gond, Khond , Bhil, Baiga etc.

According to The Report of Development of tribal areas by National Committee on Develpoment of Backward Area, Planning Commission, 1981, this region has been called **'Central northern tribal Region'**. This region comprises the Chhotanagpur belt of Bihar, eastern tribal belt of Madhya Pradesh, northern tribal belt of Orissa and western tribal belt of West Bengal. This region represents the largest tribal concentration of India. It has good forest resources. But with the growing population pressure a large area of the forests have been cut down and have got converted into agricultural land. This region has the richest mineral wealth in India. This region has a significant long history of mineral and industrial development which has resulted into intermixing of population in this region. This region has been experiencing the increasing pressure of population mainly due to the industrialization in the region. The region has also witnessed the out migration of some communities like Santhals and Oraons to the neighboring states and plantation in Assam which is now more than a century old phenomena. The main tribal communities of this region are—Santhals, Oraons, Munda, Ho in the eastern parts and Gond, Kol in the western parts. The area has moderate and well distributed rainfall. It has mild climate. The region is undulating. The

region is experiencing considerable soil erosion particularly in the southern part. The socio economic situation is mixed. Some areas are still extremely backward with only a moderate pressure of population and unexploited rich natural resources. On the other hand, some areas can boast of having giant industrial and mining complexes with large population concentration.

The study states within the study region are at different stages of socio-economic development. The following table **(Table 1.1)** shows the socio – economic and demographic characteristics of the study states in eastern mid Indian Tribal Belt. Madhya Pradesh has the highest tribal population among these four states with 23.1 percent and West Bengal has the least number of tribal people. In Bihar the decadal growth rate is quite high, i.e. 27.2 percent while in Orissa it is the lowest, 16.2 percent. The crude birth rate in Bihar and Madhya Pradesh are quite similar i.e. 30 per thousand.

TABLE 1.1

Socio-Economic and Demographic Characteristics of study states

	INDIA	BIHAR	MADHYA PRADESH	ORISSA	WEST BENGAL
Demographic Characteristics					
Total Population,(in million),2001(1)	1028.7	109.9	81.1	36.8	80.1
Percentage of scheduled Tribes to Total,2001(1)	8.2	7.1	23.1	22.1	5.5
Population density(persons/ sq.km.),2001(1)	325	632	183	236	903
Decadal Population Growth Rate (in %),1991-2001(1)	21.5	27.2	22.7	16.2	17.7
Sex Ratio of Total Population,2001(1)	933	924	937	972	934
CBR,2002	25.0	30.9	30.4	23.2	20.5
TMFR,1996	4.7	5.3	5.1	4.7	4.1
Social Characteristics					
Literacy rate,2001(1)	64.8	42.8	64	63.1	68.6
Female literacy rate,2001(1)	53.7	29.5	50.7	50.5	59.6
Economic Characteristics					
Female Work participation rate,2001(1)	25.6	24.7	35	24.7	18.3
%of People below Poverty line,1999-2000(2)	26.1	42.6	37.4	47.1	27
Health Characteristics					
IMR(per 1000 live births),2002(3)	63	61	85	87	49
Maternal mortality ratio,1996(3)	408	451	498	361	264

Note; Bihar including Jharkhand and Madhya Pradesh including Chattisgarh
Source: (1) Census of India 2001
(2) Health Information of India, 2005
(3) India, Registrar General, 1999 and 2002

The social and economic characteristics of the states show that the literacy rate for total population as well as the female literacy rate is highest in West Bengal followed by Madhya Pradesh while Bihar has the least of all states. People below poverty line are the least in West Bengal where as it is highest in Orissa followed by Bihar.

The infant mortality rate is higher in Orissa followed by Madhya Pradesh. It is lowest in West Bengal among the states included here. The maternal mortality is very high in Madhya Pradesh followed by Bihar but again it is lowest in West Bengal

Thus it can be roughly said that among the states included for the study, West Bengal is the most developed state whereas Bihar is the least developed socio-economically. Now it is important to know that how the utilization pattern of the maternal health care service varies according to different social groups in various states which are themselves in different levels of socio-economic development.

1.4 SIGNIFICANCE OF THE STUDY:

The study of the maternal health care utilization is very important because the death of the mother has significant impact on infant survival and development. Very little is presently known about the health status of tribal communities. The study of maternal health care utilization status of communities belonging to such poorest and under-developed strata of the society i.e. tribal women is highly essential to be focused on where the impact of contemporary modern development activities has minimum or no profound effects on the health profile. The understanding of the people's behavior towards utilization of maternal care services will benefit policy-makers, programme managers and researchers working in the field of health. This sort of studies will operate as feed back to the development programmes to improve the maternal health status of tribal women and to develop a more meaningful health services for these deprived communities of India. Promoting maternal health programmes will not only accelerate the reduction of maternal mortality but also

ensure the birth of healthy babies. Therefore a detailed study of the utilization of maternal health care services is useful in framing new policies and identifying the priority research areas.

1.5 ORGANISATION OF THE DISSERTATION:

The dissertation focuses on the study of the utilization of maternal health care services by the tribal women in eastern mid India tribal belt comprising four states – Bihar, Madhya Pradesh, Orissa and West Bengal. It contains six chapters- chapter 1 in the introductory chapter which gives various aspects of women's health, maternal health care, position of tribal women in the society etc. It also describes the study area, the objective of the study and the significant of the study. Chapter 2 is the review of the literature which is an attempt to review the various works done in the field of maternal health care. The importance of this chapter is because this helps to find out the research gaps in this field of study. Chapter 3 is the conceptual framework of the study which describes the concepts, the hypothesis and methodology adopted in the study further. Chapter 4 is the statistical analysis of the maternal health care utilization in the study area. Chapter 5 discusses the factors influencing the utilization of maternal health care practices with the help of Logistic Regression analysis. And the last chapter 6 is the concluding chapter of the study.

CHAPTER 2

REVIEW OF LITERATURE

CHAPTER 2

REVIEW OF THE LITERATURE

The tribal population has been the matter of research in many of the sociological and anthropological studies. There are numerous studies dealing with the socio-economic status of tribals but literatures dealing with the demographic aspects especially the health aspect of tribal society and that too of the tribal women is lesser as compared to the former one. Dutta and Sood (2005) have also mentioned that while there is a broad understanding of the health and nutrition problems of the general population, particularly of the urban and rural communities of India, such information on tribal population is meager.

2.1 TRIBAL HEALTH IN INDIA

In various literatures, there is a general agreement that the health and nutrition status of tribals in India is very poor. In tribal society, the infant mortality rate and the maternal mortality rate is higher than non-tribal population. There are various socio-economic and cultural factors which affect the health status of any community. Dutta and Sood (2005) have said that the overall health status of the tribal community is the outcome of several interacting factors such as – effect of environment which the tribal inhabit at, behavioral pattern and life style of the tribals, health care delivery services in tribal areas and hereditary and genetic determinants. Wide spread poverty, illiteracy, malnutrition, ignorance of the causes of diseases, lack of health services and inability to seek and use them have been traced in several studies as possible factors contributing to the ill-health conditions among the tribal population.

Mukherjee S. (2006) also emphasizes the need of special attention on the health problems in the context of tribal communities in India. Tribal population has distinctive health problems which are mainly governed by their habitat in different terrain and ecologically variable niches. The health determinants of tribals are a result of the interface between socio-economic, cultural, environmental and biological factors coupled with traditional practices and indigenous systems of medicines.

Pratibha Kumari (1997) in her study on health hazards among the tribals and their cultural cognition for modern medical system has done a case study of Rajendra Medical College and Hospital, Ranchi. The study has shown that the tribal groups suffer from different types of health disorders which are directly or indirectly related to their ecological setting and socio-economic conditions. The lacunae of the modern medical system has resulted in its under utilization by poor tribal mass; e.g. the health centers in tribal and rural areas are few and ill equipped having neither sufficient medicine, life saving drugs nor indoor facilities, enough trained personnel and medical staff for the application of modern medical treatment. The cultural factors have also contributed a lot for the ill-health status of tribals. They have their well developed indigenous healing processes which include herbal medicines as well as magico-religious and spiritual treatment. One of the important reasons why the tribals use folk modes of health care because the patient and his relatives feel they can talk more freely to folk medicine man than with modern physician. On the contrary to the indigenous medicinal practices, western system of medicine is alien to the cultural pattern of the rural folk. Due to lack of proper education and awareness the patients have little or no idea about cause of different disease and need for health care. But it is not that the tribals are against modern medical system. Due to cultural contact, urbanization, the tribals respond positively for the modern medical treatment. The ascendancy of modern medical system has been attained through a slow process in the traditional modes of treating disorders. The extent of positive response for modern medical system depends on several factors such as economic status, classes, religion, rural or urban area education, interaction pattern with people.

The indicators of health and outreach of health services like IMR, (infant mortality rate) child mortality rate, institutional deliveries, immunization coverage etc. are not very satisfactory among the tribal population. According to Nayak and Basu (1983) due to various factors like illiteracy, poverty, difficult terrain, isolation, superstition and inadequate health facilities, they have to face many problems. Due to geographical reasons they inhabit very small villages scattered over a large stretch of mountainous terrains. Wide dispersal of smaller habitation with poorer communication facilities results in poor outreach

of healthcare. Malnutrition, anemia, parasitic infections, like malaria, diarrhea, respiratory disorders, communicable diseases, genetic disorders are prevalent in tribal society. But the matter of concern is that despite of their complex nature of problems, the tribal groups are not targeted specifically in any national health policies/programmes, though the social/ health inequalities are clearly mentioned in national health policy. With time several anthropogenic factors like deforestation, industrialization, displacement – rehabilitation and socio- cultural transformation processes like diffusion, assimilation, acculturation and intrusion of the non-tribals into the tribal areas have created a complex change in the tribal life as a whole, and eventually influenced their health and nutritional status.

Basu (2000) also talks about the health problems of tribal population in detail and focuses on certain interacting factors like the infant mortality rate ,life expectancy , genetic disorders , sexually transmitted diseases, nutritional status , forest ecology, child health and health care practices which are generally responsible for determining the health status and health behavior of tribal community. He also emphasizes on the concept of 'health culture' to understand the health conditions especially among the tribal population. According to D. Banerjee (1986) the culture of community determines the health behavior of the community in general and individual members in particular. The health behavior of the individual is closely linked to the way he or she perceives various health problems, what they actually mean to him or her, on the one hand and on the other his or her access to various relevant institutions. However a very few studies are available in this direction.

Nagda (2004) in his studies has discussed that in tribals, interference of supernatural agency is particularly strong in context of health and disease. The different deities and spirits are connected with various types of disease. All these deities have their own respective sphere and field. The dependency and belief on '*Bhopa*'- the tribal priest are often responsible for the non-acceptance of modern medicine. If the reason of illness is identified as evil-eye or witchcraft, the tribals always would call their '*Bhopa'* instead of consulting a doctor, as they strongly feel that the doctor are quite helpless against such evil forces which can only be counteracted by '*Bhopa*'(Nagda,1992). In tribal community, illness and the consequent treatment is not always an individual and familiar affair, but the decision about

the nature of treatment may be taken at the community level. In case of some specific diseases, not only the diseased person but also the total village community is affected. Health and treatment are very much connected with the environment. The traditional health care system and treatment are based on their deep observation and understanding of nature. The tribal healer used, different part of plants not only for treatment, but also even for population control. This knowledge can be fruitfully utilized in a wider context.

Studies have also been done showing that though tribes can be taken as a homogenous group according to the definition of 'tribes' and on the basis of lower socio-economic status as compared to that of non tribal population on a macro level but closer view suggests that they are not the homogenous group, so their health problems also vary accordingly.

Mukherjee S. (2006) agrees with the above mentioned and states that the scheduled tribes are not one uniform group of people and form an omnibus category. The tribal groups are different from one another. They comprise of heterogeneous population in terms of racial or ethnic composition, numerical size and level of technology and socio-economic development. Thus health problems faced by the tribes are nothing but the regional problems faced by the entire local populace. She has regionalized the tribal concentration in India into – Central tribal region, western, north-eastern, north-western, southern and island region. Behind this regionalization the motive is to emphasize that the disease pattern and its remedial measures have a direct relationship with the eco-system and physical environment in which the tribal groups live. Proper knowledge of the tribal setting of India thus becomes an essential pre-requisite for understanding the disease pattern and health problems of the tribals.

According to Dutta & Sood's point of view (2002) health problems and health status of all tribal groups are not the same and are as varied as the tribal groups themselves. Different tribal groups of India are characterized by their individual socio-biological and socio-economic attributes. The health of these tribal populations is as such a function of the interaction between socio-cultural and socio-biological practices, genetic attributes and

environmental conditions. So according to the conditions their health status also vary considerably. In their study they have found three categories of tribal population in India according to their different stage of development. They are – first , remote forest dwellers who are self contained in forest base, second , forest dwelling secluded but forest resources eroded who are living under deforested conditions/denied access to land/forest based resource , and, third, so called 'accultured' tribes coming in close social contact with non-tribals living on the substratum of the developing civilization around them. They have clearly shown the different health problems of different category.

Basu (2000) also has accepted that the tribal scene does not present a uniform canvas. The scheduled tribes are at different stages of socio-cultural and socio-economic development. He has classified Indian tribes into seven groups and their health conditions vary according to which stage of development they are in. These groups are – food gatherers and hunters, shifting cultivators, settled agriculturists artisans, the pastoralists and cattle herders, the folk artists and the wage laborers.

2.2 WOMEN'S HEALTH

Literatures show that the health status of women in India is inferior to that of men, be the women from any section of the society. Women have the burden of entire household and she can not take care of her health.

Nanda (2000) in his study based on households in rural areas of three North Indian states has given a direction to understand women's illness in the context of social, economic and demographic conditions. There is a gender dimension in healthy living. From the socio- cultural perspective, women's health in traditional rural India is characteristically 'genderised'. The risks of exposure to disease are different for men and women and across their life span. The age pattern of morbidity among women reveals that female disadvantage in health begins to intensify around the age twenty coinciding with marriage and child-birth. The educational attainment of women has the potential to lower the

prevalence rate of illness. Women's morbidity is high both at lower and higher income levels, indicating the relative difficulties in establishing the link between poverty and ill health without taking resource to household commodity ownership and use. The study also shows that borrowing, presence of household industries, possession of pressure cooker, extended family system, exposure to the news paper, lead to improvement in women's health whereas poor accommodation, larger household size, lesser share of females in the household increase their risk of ill-health.

Krishna Soman (1997) in his study citing the examples of three women have concluded that the lower social status of women within and outside the household combine to limit women's opportunities for improving their health status. The gender restrictive social norms act as critical factors in determining women's health at family level. The study highlights that there is gender differential at even family level which determines availability and quality of health care at family level. Women provide emotional support and extra physical labor whenever their husband or other members of the family fall ill, but they practice 'self-denial'. Whenever the husband is ill, wife tries hard for his treatment even by selling vessels of the household, but such concern is hardly seen when she falls ill.

2.3 STATUS OF TRIBAL WOMEN IN SOCIETY

There have been a number of studies on the tribes, their culture and the impact of acculturation on the tribal society. There have also been studies on the status of women relating to their socio- cultural problems, their economic rights, their participation in management, their access to employment, food, health, etc. But these issues have not been properly focussed in relation to the tribal women. There are only a few studies on the status of tribal women in India (Mann, K. (1987); Singh, J.P., N.N Vyas and R.S.Mann (1988). Thus the study of tribal women cannot be ignored. It becomes important because the problems of tribal women differ from a particular area to another area owing to their geographical location, historical background and the processes of social change (Chauhan, (1990). For this, there is a need for proper understanding of their problems specific to time

and place so that relevant development programmes can he made and implemented. There is a greater need for undertaking a region-specific study of the status and role of tribal women which alone can throw up data that will make planning for their welfare more meaningful and effective (Singh, K.S.;1988).

The status of women in a society is a significant reflection of the level of social justice in that society. Women's status is often described in terms of their level of income, employment, education, health and fertility as well as the roles they play within the family, the community and society(Ghosh, S, 1987).

In literature, there is a mixed thoughts about the status of tribal women in the society. A higher social status of women was reported by Furer Haimendor (1943), Hutton (1921) and Firth (1946) among 'Tharus' of Uttar Pradesh and 'Nagas' and 'Garos' of the North-East. The tribal women are considered better off than their counterparts. A tribal woman occupies an important place in the socio-economic structure of her society. The tribal woman is found to be exercising a relatively free and firm hand in all aspects related to her social life unlike in non-tribal societies. Traditional and customary tribal norms are comparatively more liberal to women.

However, after a comparative analysis of the various indicators (political organisation, religion, ritual practices etc.) among the different tribes of India, it has been observed that the status of tribal women is comparatively lower than that of tribal men. Moreover, the status of tribal women has gone from bad to worse as a result of the impact of social change which has affected the social structure of tribal society. (Chauhan, 1990)

B.M. Mitra (2000) has also discussed both the positive and negative aspects of the status of women in tribal society. The study says that 'motherhood' and 'mother-earth' are the pillars of tribal life. Women have more important role to play in their society. Women are considered essential and useful in tribal families for the purpose of procreation, rendition of domestic duties and to carve out pursuits of means of livelihood. Payment of bride price is generally considered as a pre-requisite condition of marriage as women are considered as prized possession. In the events of early widowhood they are allowed to remarry, divorce by

mutual consent is permitted. Even when a divorced woman remarries she is allowed to bring along the children born of previous marriage to the house of the next husband. But there is a negative side of the status of tribal women. Amongst the north-eastern tribes one can see that the property is owned by a female but control over management of property is exercised by a male person. Actually the status of women is not uniform amongst all the different scheduled tribes of India. They vary because of historical reasons, effect of particular social heritage and level of social consciousness, and also in view of different levels of economy and patterns of occupation. In spite of active participation in harvesting, fishing, or productive functioning, according to occupational pattern of different tribes, women have not generally been given right to inherit immovable property except in tribes which are matriarchal in nature, such as 'Khasis' and 'Garos' of Meghalaya. Similarly amongst 'Nagas' and Mizos' the opinion of women counts during the process of selection of partner in marriage, whereas amongst the Bhils and 'Baigas' this is just a formality. Amongst the tribes of northern and central regions of the country males have predominant roles of choice at the time of marriage. In 'Kinnaur' hill tribe in Himachal Pradesh women are considered as economic assets as they render manual services in agricultural land and shifting cultivation. (Mahato et al. 1975)The 'Santhal' women generally do not get a place of honour in rituals. Women are not generally allowed to hold religious office and political offices. But there is an attitude of respect to women in tribal society which can not be ignored.

Singh and Rajyalakshmi (1993) show the negative status of tribal women in the society and say that even after six decades of Indian independence now, despite constitutional protection and assurances, their status is found to be lower than not only that of women in the general population and the scheduled caste women but is also lower than the status of tribal men. The low status of tribal women is characterized by over-work, invasion of sexually exploitative market forces in tribal society, illiteracy, sub-human physical living condition, high fertility, and high malnutrition and near absence of modern health care facilities. The impact of development has been different for different sections of tribal women. But this is sad that only few tribal women have been able to take advantage of education, new opportunities of employment and self-fulfillment. They have been adversely affected by the developmental programmes also. With modern agricultural

implements, unemployment of women has increased and they have been migrating to other areas as laborers like in mines, collieries where they are paid less and are exploited in many ways. Women labourers (*rejas*) are exploited socially and sexually. Tribal women are used for immoral trafficking in collieries and mines and by labour contractors. Increased government control of forests and restriction regarding exploitation of forests has also marginalized tribal women who were mostly depended on forests for gathering fuel wood, and other forest products for the household.

Kar (2002) in his study of socio-economic status of women in North-East India has shown statistically by using the technique of Principal Component Analysis and Composite index of status of women that there is spatial disparity in socio-economic status of women. The nature and intensity of problems of women vary both spatially and socially depending on a range of historical and ecological factors and the prevailing socio-economic and cultural practices of the region.

Majumdar (1973) has reported a higher status of tribal women on some indicators while lower on others, while Shashi (1978) has concluded that the status of tribal women varies from tribe to tribe.

2.4 HEALTH STATUS OF TRIBAL WOMEN

Basu (1993) has carried out a comprehensive health related studies among tribal women of different tribal groups namely Muria, Maria, Bhattra, Halba of Basta district, Madhya Pradesh, Jaunsaris of Jaunsawar Bawar, Dehradun district, Uttranchal, Kutia Khonds of Phulbani district, Orissa, Santhals of Mayurbhanj district, Orissa and Dudh Kharias of Sundergarh district,Orissa in the light of several parameters i.e. Sex ratio, female literacy marriage practices, fertility, mortality life expectancy, nutritional status maternal and child health care practices sexually transmitted diseases genetic disorders etc. and had concluded that the health status of tribal women is found to be lower than that of the non-tribal women on most of these aspects.

Ramalingaswami (1986) has tried to show the impact of social change on health problems of tribal women. It has been reported that it is not that the tribal women don't accept the government programmes, but unfortunately many at times the programmes have not reached to them nor have benefited them. To understand the impact of government programmes on women from economically weaker section a study was conducted, with a sample consisting of 372 tribal women in 15-49 age group living in Paderu block of Vishakhapattnam district of Andhra Pradesh. The author reported in her paper that although these women were illiterate and were living in a remote place away from urban influence, then also they showed awareness about these programmes especially the developmental and health programmes and desire for these services. The knowledge about what they can have and what they are having in basic problems like child birth is making them aware of their own circumstances and is creating a mixed feeling of sorrow and discontent. Social change that is being brought about by government programmes has succeeded to an extent creating awareness about them.

2.5 MATERNAL HEALTH

Jejeebhoy (1997) has criticized India's Family welfare Programme that it has not been a success in terms of improving the reproductive health of women in India. India's national family programme has two stated objectives: to address the needs of families, notably women and children, and to reduce population growth rates. But in reality the programme has been disproportionately focused on achieving demographic targets by increasing contraceptive prevalence and notably female sterilization. In this process women's needs have been generally overlooked by the programme. The consequence of this neglect is the poor reproductive health. Women' poor reproductive health in India is affected by a variety of socio-cultural and biological factors. Poor reproductive health of Indian women is because of poor overall status on the one hand and an inadequate delivery system to cater to the needs. There is malnutrition among women; quality of reproductive

health services is bad which inhibits women from seeking health care. So there is a need to improve the quality of reproductive health care, health information, sex education etc.

Sahay (1981) points out that in patriarchal society like India, where the status of women is low maternal mortality is of little concern. Maternal death is seen as an individual misfortune rather than as an event that merits public concern. Thus maternal death remains private and invincible. A large number of the maternal mortality is preventable.

While there are medical causes for maternal mortality but socio-economic and cultural factors also play a crucial role in India. Due to the complex norms and beliefs of the society the entire process of marriage, pregnancy, child birth is guided by a number of observations, rites and ceremonies. A pregnant woman is expected to observe a number of taboos and restrictions in her movements, activities and food habits. The situation is all the more aggravated among women in tribal belt of India because of the prevailing magic-religious and socio cultural practices.

2.6 MATERNAL HEALTH CARE PRACTICES AMONG TRIBALS

Various literature evidences show that maternal and child care is an important aspect of health seeking behavior which is largely neglected among the tribal groups. Basu (2000) accepts high maternal mortality among various tribal groups. The chief causes of maternal mortality were found to be unhygienic and primitive practices for parturition. For example, it was observed that among *Kutia Khondhs* the delivery was conducted by the mother herself in a half squatting position holding a rope tied down from the roof of the hut. This helped her in applying pressure to deliver the child. In complicated labour, obviously it might lead to maternal as well as child mortality. Similar crude birth practices were found to exist in other tribal groups like *Kharias, Gonds, Santhals, Kutia Khondhs*, *Jaunsaris*, *Kharias*, etc. Expectant mothers to a large extent are not inoculated against tetanus. From the inception of pregnancy to its termination, no specific nutritious diet is consumed by women. On the other hand, some pregnant tribal women, (that is, *Dudh Kharias, Santals*)

reduced their food intake because of simple fear of recurrent vomiting and also to ensure that the baby may remain small and the delivery may be easier. The consumption of iron, calcium and vitamins during pregnancy is poor. The habit of taking alcohol during pregnancy has been found to be usual in tribal women and almost all of them are observed to continue their regular activities including hard labour during advanced pregnancy. More than 90 per cent of deliveries are conducted at home attended by elderly ladies of the household. No specific precautions are observed at the time of conducting deliveries which resulted in an increased susceptibility to various infections. Services of paramedical staff are secured only in difficult labour cases.

Pandey and Abbad (2002) studied the birth related practices in *Hill-Korwas*- a primitive tribe of Chhattisgarh in detail. He came up with the observations that they have various misconceptions, taboos, and practices regarding maternity. 'Gunia' (local medicine man) is consulted for complications during pregnancy. No special food is taken during pregnancy. They are not aware about antenatal services provided by PHC. If at all, they are approached by health personnel, they do not avail the services due to their misconceptions. Pregnancy and childbirth are considered as natural process so no special care is taken. Old ladies of village mostly conduct the deliveries. In case of complications, the magico-religious acts are performed. After delivery, naval cord of the male child is cut by bamboo strips and that of the girl child with a knife. The belief behind is that the male child will go to forest in search of food and also for hunting with bow and arrow made of bamboo. The village ladies think that modern medicines, injections etc. will harm the pregnant women. Thus the author has concluded that the tribes mainly depend on traditional medication. They lack faith in modern health care due to misconceptions and superstition.

But with the social changes with development the situation of the tribal women's attitude about using maternal health care utilization is improving. Mukherjee (2003) in his study of *Jowhar* tribal community of Maharashtra has shown that among these tribal communities the allopathic system is becoming quite popular. Tribal women are responding favorably to the health department. This has resulted in lowering of maternal mortality rate.

And with the further improvement in education and stable economic resources their health status would go up.

2.7 UTILIZATION OF MATERNAL HEALTH CARE

Utilization of maternal health services has been identified in a number of studies as an important factor determining maternal mortality. The use of health services is a complex behavioral phenomenon. It is related to the organization of the health delivery system and is affected by the availability, quality, costs, continuity and comprehensiveness of services. Social structure and health beliefs also affect use. Empirical studies of preventive studies have often found that use of services is strongly correlated with demographic and socio-economic characteristics.

Mazharul Islam (2003) in his study using multivariate analysis has reported that mother's parity, education , mobility status, place of residence, mass media exposure, father's occupation economic status of the household, religion and some programme related factors like distance of the health clinic show significant effect on receiving adequate and inadequate antenatal check-ups and delivery care.

Using the NFHS data Ghosh (2004) with multivariate logistic regression indicate that educational attainment of women is the most important factor in determining utilization of maternal health care in rural , and more importantly in urban area, after controlling for all other factors. Standard of living (proxy for household economic status) too was found to be a significant determinant of accessing health services in both rural and urban areas. Media exposure was important in use of antenatal care which in turn was significantly associated with accessing delivery care.

Celik & Hotchkiss (2000), aim at the study to investigate the individual household and community level factors that affects the use of maternal health services in Turkey. For the study two maternal health care indicators – prenatal care use and birth delivery

assistance among women who had at least one birth in the three years prior to the Turkey Demographic and Health Survey has been taken. The study has been separately done for urban and rural women. The result shows that the logistic regression models for the three models for total, urban and rural samples are more or less similar. The educational attainment, parity level, health insurance coverage, ethnicity, household wealth and geographic region are statistically significant for the use of maternal health care. In case of urban and rural sample for the use of prenatal care the only difference is the impact of car ownership, which was found to be significant among the urban women but not rural women.

Glei et al. (2003), again in the similar study examine the pregnancy-related care in Guatemala. In Latin American countries although the government intervention in the field of providing health services has increased but the utilization of these biomedical services for pregnancy related care continues to be low. The findings of the study suggests that there are various social cultural and demographic factors like duration of pregnancy , ethnicity , schooling autonomy in the household decision making which are important predictors of prenatal care. Apart from these the study suggests that the factor related to obstetric need i.e., the complications in an ongoing and previous pregnancy like prior fetal loss, pregnancy complications also strongly affect a woman's decision to seek care. On the other hand measures of availability and access to health services and family's ability to afford them have modest effects. The lack of association between a family's income and utilization of biomedical services is not surprising because many of the women use the government provide health services which are cheap and affordable. The other surprising finding is the absence of relationship between the proximity of these services and their use. The explanation for this can be that the quality of the health services is not good enough to convince the women for using them. Thus the study suggests the importance of indirect variables- such as the quality of care in explaining the decision about using maternal care.

Sood and Nangla (1996) in their study describe the level of adaptation of simple maternal and child health interventions by the rural mothers in the district of Rohtak in Haryana. The study is based on primary level data. For the study the Adoption Index has

been calculated as the number of practices adopted per 100 numbers of practices available. The results of the study shows that the education and exposure to mass media are positively correlated to the adoption index of MCH care interventions.

Magadi et al. (2000) have studied in detail the 'frequency' and 'timing of first antenatal visit' in Kenya. He has tried to show the variation in frequency of antenatal care visits between births, women and communities and also the variation in the timing of antenatal visits between births, women and communities. This demonstrates that given the same resources, some women are more likely to use services than others depending upon various socio economic and cultural factors. His study also tells that there are many socio – economic and demographic factors which are significantly associated with the frequency and timing of antenatal visits. The results show that high socio economic status, low parity, and planned pregnancies are associated with frequent use of antenatal clinics and early first visits. On the other hand women short birth intervals, those of high parity, teenagers mothers use the antenatal services less frequently. The proximity to maternal health care services is also important: long distances to the nearest antenatal care facility is an obstacle to receive adequate antenatal care. The association between low household socio-economic status and late start to antenatal visit suggests that poverty puts hindrances to the antennal care uses. The result regarding the antenatal care uses among different ethnic communities shows that there is variability in the frequency of use of antenatal services probably because of traditional beliefs and cultural practices that are common to a community.

Thaddeus et al. (1994) in their study have emphasized many of the maternal deaths can be prevented with timely medical treatment. Therefore actually delay is the main cause of many of the maternal deaths. They have talked about three types of delay and have provided a detail conceptual framework for the three phases of delay—Phase 1 delay, Delay in deciding to seek care on the part of the individual , the family or the both. Phase 2 delay- Delay in reaching an adequate health care facility. Phase 3 delay, delay in receiving adequate care at the facility. The phase 3 delay is caused by perceived quality of care factors like previous experience , satisfaction with outcomes effectiveness of treatment and prescribed remedies, satisfaction with the service i.e. staff attitude, hospital procedures,

availability of supplies, waiting time efficiency privacy, consistent with local beliefs etc. the phase 2 delay is due to perceived accessibility factors like distance, transportation and cost of the transportation facility fees medication opportunity cost , cost of accompanying people and bribes. The phase 1 delay is because of the combined effect of all the above mentioned accessibility factors and quality of care factors along with that the socio-economic cultural factors like illness factors i.e. recognition of complications, perceived severity & perceived etiology, the socio-legal issues i.e. illegal abortion, women's status i.e. access to money, restricted mobility & value of women's health, economic status and educational status. And then phase 1 delay affects phase 2 delays and that affects phase 3 delay.

Pandey et al (2004) in his paper on maternal health care practices on three states-Chhattusgarh, Jharkhand and Uttranchal have shown that there is geographical and topographical differentials in the utilization pattern of maternal health care as different states show different pattern. They have tried to see the effect of state factor on the utilization of maternal health care services. The study found out that Uttranchal differed in ANC and delivery care utilization. The adverse geographical settings like hilly terrain affect the availability and accessibility of health care facilities to some extent. But the underlying factors are the socio-economic factors which are responsible for the differentials in utilization of ANC and delivery care.

Literature search show that in India 'caste-system' also affects the maternal health care practices. Documented evidences exhibit a strong association of the caste system and utilization of maternal health care services. According to Kopparty (1994) apart from economic conditions the social hierarchy or the social stratification existing in the society is likely to influence the health behavior of individuals. Social stratification condition determines the livings conditions, privileges, obligations and cultural traditions surrounding the life of a person which in turn affects his perception regarding health, knowledge of health care and accessibility to health resources.

Roy et al. (2004) has shown that there are social inequalities in health and nutrition among caste / tribes categories. The results of the study have shown that higher percentage of SC/ST women do not use antenatal care, delivery care, compared to women in other category. But it may not be due to their caste per se. it can be due to other reasons like they are socio-economically backward as compared to women in other category. Kanungo et al. (1984) also shows the less utilization of the health care by the mothers belonging to lower rank in the society. They are also poor in awareness o good health and health care facilities. Amongst different social groups in India, scheduled tribe women have the highest level of anemia, lowest percentage of ANC, delivery care etc.

Rajaratnam et al (1997) in his study on 'Malto' tribe of Bihar & G.D.pandey and Alpana Abbad (2002) in his study on 'hill-Korwa' tribe of Chattisgarh have emphasized that the misconception , taboos , cultural practices are the main reason for the low utilization of maternal health care . Rajaratnam et al's study is based on a cross sectional national survey conducted on April 1993 by the RUSHA Department of Christian Medical College and Hospital, Vellore as part of the baseline survey to implement a Kala-Azar control programme among Maltos. Five Malto villages were selected at least one from each block of Sahibganj district (now in Jharkhand state) taking into account the distance from the main road such as two villages with less than 2 km (near) , 2 with 3 to 15 km.(medium) , and one with more than 15 km. these villages consisted of 63 households with 299 individuals. The study shows that there is very poor and backward situation of utilization of maternal health care. 85 percent mothers did not have even a single antenatal check up during pregnancy, 87 percent did not have TT injection during their pregnancy and 83.3 percent of the mothers did not take iron and folic acid tablets. Almost all the deliveries (98.2%) were conducted at home. Most of them (63%) used bamboo to cut the umbilical cord to separate the child from the mother. Pandey et al's study on hill- Korwas tribe of Chhatisgarh tries to focus the attention on that most of the tribal are inhabited in the isolated areas away from the impact of modern civilization and they have their own traditional birth related practices. They mostly depend on the traditional system of medicine. They don't have faith in the modern health care. Many at times they are not able to avail the facilities which are available due to the lack of education and poverty. Therefore there is a need to

educate people along with providing health facilities. So that they can dispel misconceptions and use govt. health services if available, which are cheap. Because of the less utilization of health care services among tribal population, so there is a special need to study the maternal health care utilization of tribal women.

Gyimah, et al. (2006) in their study on Sub-Saharan Africa tried to test the relevance of religion in the maternal health service utilization as very few studies have examined the possible link between religion and MH care utilization in the region. In sub Saharan Africa the influence of religion in the social fabric is very high on one hand and on the other hand there is unacceptably high level of maternal mortality in the region which opens the scope of the study to test the possible link between religion and maternal care utilization. The data from the 2003 Ghana Demographic survey has been used and it was found that the religion is a significant factor in MH use. In general, Muslims and traditional women were less likely to use maternal care services compared with Christians.

Along with other socio-economic factors, education plays a very important role in the utilization of maternal health care services. A study on Peruvian women by Elo(1992) has suggested that the education helps in making people aware of the importance and benefits of utilizing health care services. It could influence the women's beliefs about disease causation and cure and the value she gives to the modern medicine. Maternal education has shown a strong positive association for delivery assistance than prenatal care.

Raghupati (1996) opined from his study on maternal and child health services in Thailand that educational differentials in use of delivery assistance emerges only after secondary schooling. Higher education seemed to be the most important predictor variable for utilization of prenatal care, delivery assistance.

Borghi et al. (2003) in their study assess the cost of women and their families associated with delivery and other obstetric complications and find out that the high costs of such care may well deter women and their families from utilizing emergency obstetric services when they need them; or result in delays in accessing such services. Stanton and

Clemens (1989) support this and declare that the anticipated costs may play a major role in deterring care-seeking. Thus the actual as well as perceived affordability of health services is very important. Not only this, even if the formal fees are low or non-existent, there may be hidden fees in terms of cost of transportation, drugs purchased outside of the hospital and food and lodging for the mother and her accompanying family members(Abel-Smith and Rawal 1992; Nahur and Costello 1998).

Sunil et al. (2006) have tried to see the effect of welfare programme or system factors along with the individual factors on the health care utilization which was considered left out in many of the previous studies. In the study a composite index of utilization of maternal care services was computed based on responses to three questions related to antenatal care services – number of antenatal care visits , whether the mother received enough iron and folic acid tablet/syrup for more than 3 months and whether the mother received two or more tetanus toxoid shots during her pregnancy – and responses to two delivery care services – whether the mother received assistance from the health care professional at the time of delivery and the place of delivery. Further, this index was grouped into five categories namely 'poor', 'fair'.,average', 'good' and 'excellent'. Ordered logit regression with sample design correction was used to examine the determinants of utilization of maternal care services. The effect of socio economic and demographic community and programme variables on the maternal care utilization suggests that in addition to individual characteristics, programme and system factors influence the utilization of maternal care in rural areas. These include the presence of a health facility within the village, the availability of 'mahila mandal' or 'anganwadi' center and the organized IEC activities in the village. The study further strengthened that only the presence of health care providers i.e., the health facility was not the indication of improving maternal care utilization but other programmes that incorporate health education and create awareness about the use and benefit of maternal care are also important.

Further showing the importance of MCH services utilization the study done by Seiber et al. (2005) a study on Guatemalan women have tried to answer the question that does the utilization of modern maternal and child health services (MCH) influence

subsequent contraceptive use. The analysis has indicated that the intensity of MCH services use is indeed positively associated with subsequent contraceptive use among Guatemalan women, even after controlling for individual, household and community level factors. The findings have indicated that investment in the programmes that improve the use of MCH services not only improve MCH services but also raise the use of Family planning services.

Ramarao et al. (2001) in their study have tried to find out the reasons of very high maternal mortality ratio in Uttar Pradesh. The study has been done taking the two districts of UP Sitapur and Agra and the utilization pattern as well as the readiness of the primary health centers to provide antenatal and emergency obstetric services has been analyzed to show the reasons why maternal mortality is very high in UP and why it has not declined. The study shows that though the safe motherhood programme exists but the equipment and technical competence to provide services are weak. To reduce the maternal mortality, improvement in the service delivery as well as community mobilization to improve utilization of services is required.

In order to have a look at the supply side of the maternal health care utilization Amarjit Singh (2006) in his article has put the emphasis on the need of the public and private sectors partnership in providing maternal health care facilities. The study discusses that there is acute shortage of staff for proving the government facilities due to the unwillingness of trained obstetric and gynecology staff to work in remote rural areas. This creates a big problem for a good conduct of government facilities. On the other hand there is large trained manpower easily and easily available in the private sector. The study has given the details about the success of the "Chiranjeevi Yojana" – a private – public partnership programme – a programme for outsourcing delivery to private gynecologists in the state of Gujarat.

Alka Barua et al. (2004) talks about the need of the husbands' involvement in maternal care of wives especially young wives. Young newly married women experience pregnancy and childbearing in an environment where they have little or no autonomy in decision making, finances or mobility to seek care. Thus it may be crucial to get husband

involved since they are often the decision makers, the ones who have to accompany the young women to clinic and the ones who pay for care. The study showed that men were often excluded from participating in routine care because the medical system does not accommodate them and the community considers maternal care as exclusively women domains. The husbands from joint families were much less likely to be present during delivery than those in nuclear households, probably because in the former other women in the family take the responsibility. The study showed that the husbands who were likely to participate in routine care were those who were aware of the need for care. Moreover husbands of educated wives were more likely to accompany them as compared to illiterate wives and this effect was stronger for higher levels of wives' education, possibly indicating the wife's ability to express a desire for her husband to accompany her.

Kavita and Audinarayan (1997) in her study showed that working women in rural Tamil Nadu use antenatal care services less than non working women as they are engaged in low paid jobs and taking leave affects their income.

Regarding the type of institution Obermeyer and Potter (1991) have found out that in Jordan that the proportion of women with adequate prenatal care was the highest for those served by private sector. on an average about 55 per cent of the women received adequate care in the private facilities as compared to 38 per cent in public facilities. Even the women who had delivery at home preferred private facilities. The reason behind this is to avoid long waiting time and also in private facilities there was a choice of physicians which was lacking in public facility. Moreover women were reluctant to be examined by male physician and prefer female physicians.

Duong et al. (2004) in order to investigate factors that influence the utilization of delivery services at the primary health care level in rural Vietnam came to the conclusion that client's perception about the quality of service and socio cultural and economic factors are more important than the geographical accessibility. Women realized the importance of facility, medical equipment and personnel. They were also interested in how services were delivered, including the capacity of health workers, quality of drugs and the outcomes of

the treatment. The provider – client relationship also has a major impact on the perception of the quality of services and in turn the utilization of delivery services. The cost of services was also an important factor that affects the utilization decisions. But it was also seen in the study that even though the cost of services was high but if the quality of service was good people don't hesitate to spend and will be willingly paying for them. The socio cultural and religious factors also affect the utilization pattern. The low utilization was also linked to the Confucian culture which sees women as inferior in terms of decision making and she has to comply with the decision of her husband and parents in law. Moreover, childbirth is seemed as normal phenomena.

Brieger W R Luchok, Eng K J, e & Earp J A (1994), It is established that the provision of accessible services does not guarantee their use and other social cultural considerations must be taken into account

Bloom et al. (1999) studied a sample of low and middle income women who had given birth within the last three years in Varanasi, Uttar Pradesh to examine the effect of antenatal care utilization on the likelihood of using safe delivery care. The result of the study show that antenatal care utilization is an important determinant of safe delivery care, after controlling for a number of relevant socio demographic and maternal history factors. The logistic regression analysis shows that women with relatively high level of antenatal care had the trained assistance at delivery four times more than the women with a low level of care. Thus the study suggests that enabling women to get better antenatal care will increase the use of safe delivery as well. The study has also shown that women with high economic status and educational status, experiencing first delivery, problems experienced during delivery of the previous birth, younger women are more likely to get safe delivery care.

Goodburn et al. (1995) in the study based on the focus group discussions to explore the experience of childbirth and postpartum illness among rural Bangladeshi women tells that how the women's belief and harmful traditional practices regarding pregnancy and childbirth keep them away from using the modern medical antenatal, delivery and

postpartum care utilization. The belief system emphasizes that the problems during pregnancy or childbirth is because of some supernatural causes and they consider medical assistance or going to the doctor or hospital as the last resort. The study also tell that the limitation on mobility during pregnancy and after delivery whether due to fear , shame or to protect herself from the evil spirits as pregnant women or new mothers are considered more vulnerable to evil spirits shows the lack of autonomy of women and this mobility has important implication for their access to medical services.

Wiley Andrea S. (2002) in the work tries to find out the condition of prenatal care of pregnant women in Ladakh. The report illustrates widespread and increasing usage of biomedical services for prenatal care and birth in Ladakh over the period of past twenty years. Supporting that maternity care is based on many socio-economic and cultural factors, the ecology of the place has also been given emphasis ie, being the high altitude region, it affects a lot of other socio economic factors which pose substantial problems in the use of maternal health care in Ladakh, like, the high altitude and consequent hypoxia (reduced oxygen pressure), maternal diet which is a function of food availability and constrained by season as agriculture is highly constrained by seasonality, access to water and availability of labor, as all tasks aside from plowing and threshing (for which draught animals are used) are done by hand. Moreover salt is consumed in abundance mostly in tea. But the high intake of salt is thought to predispose Ladakhis to hypertension which may exacerbate the risk of hypertension during pregnancy. The women in subsistence societies, continue to work hard even during pregnancy, and this often results in reduction of fetal growth. Thus the Ladakhis dietary practices are potentially problematic for fetal development and the need for women's labor in an oxygen poor environment further creates problems for the fetus. Apart from these risk factors women in Ladakh are increasingly using the hospital based prenatal care and birth because of the high social position and personality of the obstetrician. Thus it can be said that the working pattern and the encouraging behaviour of the service providers also determines the use of maternal health care services.

2.8 RESEARCH GAP

There are a large number of studies examining the effects of socio-economic and demographic variables on the utilization of maternal health care services. A few studies have tried to use the variable of ethnicity or caste to bring out the differences in the utilization of maternal health care services. The effect of region or state has also been analyzed by a few researchers. Very few studies have been done on maternal health care utilization of tribal women comparing to that of with non- tribal women considering the differential in socio-economic conditions and also the differential in geographical conditions across different states of India for that matter. So the present study is an effort in the direction to fill this gap and to show the picture of maternal health care utilization among tribal women as compared to that of other non tribal social groups and also takes into account the regional differential in utilization pattern across the different states.

CHAPTER 3

CONCEPTUAL FRAMEWORK AND METHODOLOGY

CHAPTER 3

CONCEPTUAL FRAMEWORK AND METHODOLOGY

The present chapter discusses about the concepts, conceptual framework and the methodology adopted for the study.

3.1 INTRODUCTION OF THE MATERNAL HEALTH CARE INDICATORS

Maternal health care is the part of broad RCH approach. There are three components of maternal health care -

- Antenatal care
- Intranatal care
- Postnatal care

3.1.1 Antenatal care —

Antenatal care is the care of the women during pregnancy. Antenatal care (ANC) refers to pregnancy related health care provided by a doctor or a health worker in a medical facility or at home (NFHS 1998-99, IIPS, Mumbai). Antenatal care is the systemic medical supervision of women during pregnancy. The primary aim of antenatal care is to achieve at the end of a pregnancy a healthy mother and a healthy baby. Ideally this care should begin soon after conception and continue throughout pregnancy (Park, 2002: p.no. 362). Repeated check ups are necessary to monitor maternal health, development of foetus and identify any risk causing factors. Early diagnosis during pregnancy can prevent maternal ill-health, injury, maternal mortality, foetal death, infant mortality and morbidity. Hence, the earlier in pregnancy a woman comes under the supervision of an obstetrician, the better.

The main objective of antenatal care –

1) To promote, protect and maintain the health of the mother during pregnancy
2) To detect 'high risk' cases and give them special attention
3) To foresee complications and prevent them

4) To reduce maternal and infant mortality and morbidity
5) To provide advices and help in the mental preparation to remove anxiety and dread associated with delivery
6) To teach the mother elements of child care, nutrition, personal hygiene and environmental sanitation
7) To educate and motivate mothers for family planning because in this time, the mother is psychologically more receptive to advice on family planning than at other time
8) To attend to the under-fives accompanying the mother (Park 2002, p. no. 362)

The following antenatal heath care indicators have been taken for the present study

- **Women having any ANC check-up**
- **Women having more than or equal to three ANC visits-** In India, the RCH programme recommends that a pregnant woman should have at least three ANC check-ups.
- **Tetanus toxoid vaccination**—tetanus is an important cause of death among the newborns and among mothers. Neonatal tetanus is most common when delivery takes place in an unhygienic environment and non sterilized instruments are used for cutting the umbilical cord. Two doses of tetanus toxoid vaccine given to pregnant women one month apart during early pregnancy is nearly hundred per cent effective in preventing tetanus (Nair et al., 2001, p.n.62). In the present study tetanus injection given to woman at least once has been considered because of the paucity of the sample size.
- **Iron and folic acid supplementation** —it is recommended that a pregnant woman take 100 tablets of iron and folic acid tablets during her pregnancy. But in the present study woman given any IFA tablets has been considered due to smallness of sample.
- **Full ANC**--- The goal of RCH programme is at least three ANC check-ups, two tetanus toxoid injections and a full course of IFA supplementation for each pregnant woman. But full ANC in the present study refers to at least three ANC check up plus at least one TT injection and any IFA tablets given to the pregnant woman.

Although antenatal care alone cannot prevent all obstetric emergencies (Vilar 1997), the information provided by the antenatal service provider on danger signs, diet, and planning for delivery, along with testing for anaemia, malaria and high blood pressure are important for

the successful management of pregnancies and the subsequent wellbeing of the child. 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 (Maine D., 1991). Many of the maternal deaths result from complications arising during labor, delivery and the immediate postpartum period. So for the overall care of the mother other components of maternal health care are also important.

3.1.2 Intranatal care

After antenatal care comes the intranatal care, i.e. the care at the time of delivery. Delivery care is an important aspect of maternal care. Most of the maternal deaths occur around the time of labour or delivery. With this improved understanding has come a refocusing of maternal health programmes towards ensuring that women have access to care during the critical period around labour and delivery – which is when most deaths occur – coupled with referral for the management of obstetric emergencies. Thus, safe motherhood programmes tend to prioritize the need for skilled care during delivery, including emergency obstetric care, rather than ensuring that all women receive antenatal care.

Childbirth is a normal physiological process, but complications may arise. The need for effective intranatal care is therefore indispensable, even if the delivery is going to be a normal one. The emphasis is on the cleanliness. It entails clean hands and fingernails, a clean surface for delivery clean cutting and care of the cord and keeping birth canal clean by avoiding harmful practices. The aims of good intranatal care are:

- Thorough asepsis
- Delivery with minimum injury to the infant and mother
- Readiness to deal with complications such as prolonged labor, ante partum hemorrhage, convulsions, malpresentations , prolapse of the cord, etc.
- Care of the baby at delivery (Park,2002)

The following intranatal care indicators have been selected for the study --

- **Place of delivery**
- **Assistance during delivery**

From the standpoint of child survival and health of the mother, the first priority for delivery care is that it is safe and clean (World Health Organization, 1994.). About one per cent of deliveries tend to be abnormal, and four per cent "difficult", requiring the services of a doctor (Park 2002, p.no. 365). The majority of maternal deaths and chronic morbidity resulting from child birth are due to the failure to get timely help for complications at delivery (NFHS 1992-93). Each year in India, only 35 per cent of deliveries take place with the help of a doctor or midwife (NFHS2 1998-99). Therefore institutional delivery is recommended and it is essential that delivery be conducted under proper hygienic conditions with the assistance of trained medical practitioner.

3.1.3 Postnatal care

Care of the mother (and the newborn) after delivery is known as postnatal or postpartal care. This post delivery period is extremely important, to recover to pre-pregnancy health (if not better). The objectives of postpartal care are:

- To prevent complications of the postpartal period
- To provide care for the rapid restoration of the mother to the optimum health
- To check the adequacy of breast feeding
- To provide family planning services
- To provide basic health education to mother/family (Park, 2002,p.no.365)

Following postnatal indicator has been taken in study

---Whether the woman saw the doctor within two months of the birth

Dr. Kuhu Maita (2001) in her paper "Priority Actions for Safe Motherhood – Emerging Challenges" has emphasized that postpartum care is a neglected area as compared to

antenatal care and prenatal care. The health care programmes have traditionally focused on the prenatal period and antenatal periods, but postpartum period is also critical.

In the Colombo meeting, postpartum care was identified as the neglected issue and a statement was made that the majority of maternal death (61 per cent in developing countries) occur after delivery. Most of these (78 per cent) take place during 24-48 hours after delivery. Further nearly half of the postpartum deaths occur within one day of delivery and 80 per cent within two weeks. But ironically, the traditional time for the first postpartum visit by mother and baby is at six weeks, a time when there is no longer any serious danger of maternal death. In India, due to several socio-cultural practices followed in the community, majority of births occur at home. Moreover most deaths occur in the early postnatal period and traditional practices prohibit newly delivered women and their babies from leaving the house for the first 40 days after delivery. The NFHS-2 also indicated that only 17 per cent of the non-institutional births were followed by a check-up within two months of the delivery. These findings indicate that postpartum care should also be given equal importance.

Thus all the three kinds of maternal health care services are important for the better health of the mother and the baby. If any of these is neglected the aim of maternal health care can not be achieved.

3.2 FACTORS AFFECTING THE MATERNAL HEALTH CARE UTILIZATION

The reviews of the literature and other studies have shown that the maternal health care utilization by the woman depends on various socio-economic and demographic factors. These factors can be at the individual level, household level or community level. But in the present study most of the factors considered are of individual level. These socio-economic characteristics include the type of residence (rural and urban) religion, caste/tribe of the woman, woman' education level, household standard of living and woman's exposure to mass media. Among the demographic factors age of the woman, age at first union, birth order of the birth, desirability of the last birth are the important factors. Apart from these there are some factors related to the obstetrical need like- previous pregnancy wastage, any

complication during the pregnancy. While some of the factors affect the utilization of maternal health care directly whereas some factors indirectly affect it. These factors are called the 'Intermediate factors'. These are – availability of the health services, accessibility, knowledge and awareness about the health services and the affordability of the health services.

The following diagram **(Figure 1)** shows the influence of these factors on the utilization of maternal health care utilization.

3.2.1 Regional factor

There can be variability in the utilization of maternal health care utilization across the regions. The states in India are not only different from a geographical but also a development point of view. So there can be a state-specific effect on the utilization of maternal health care.

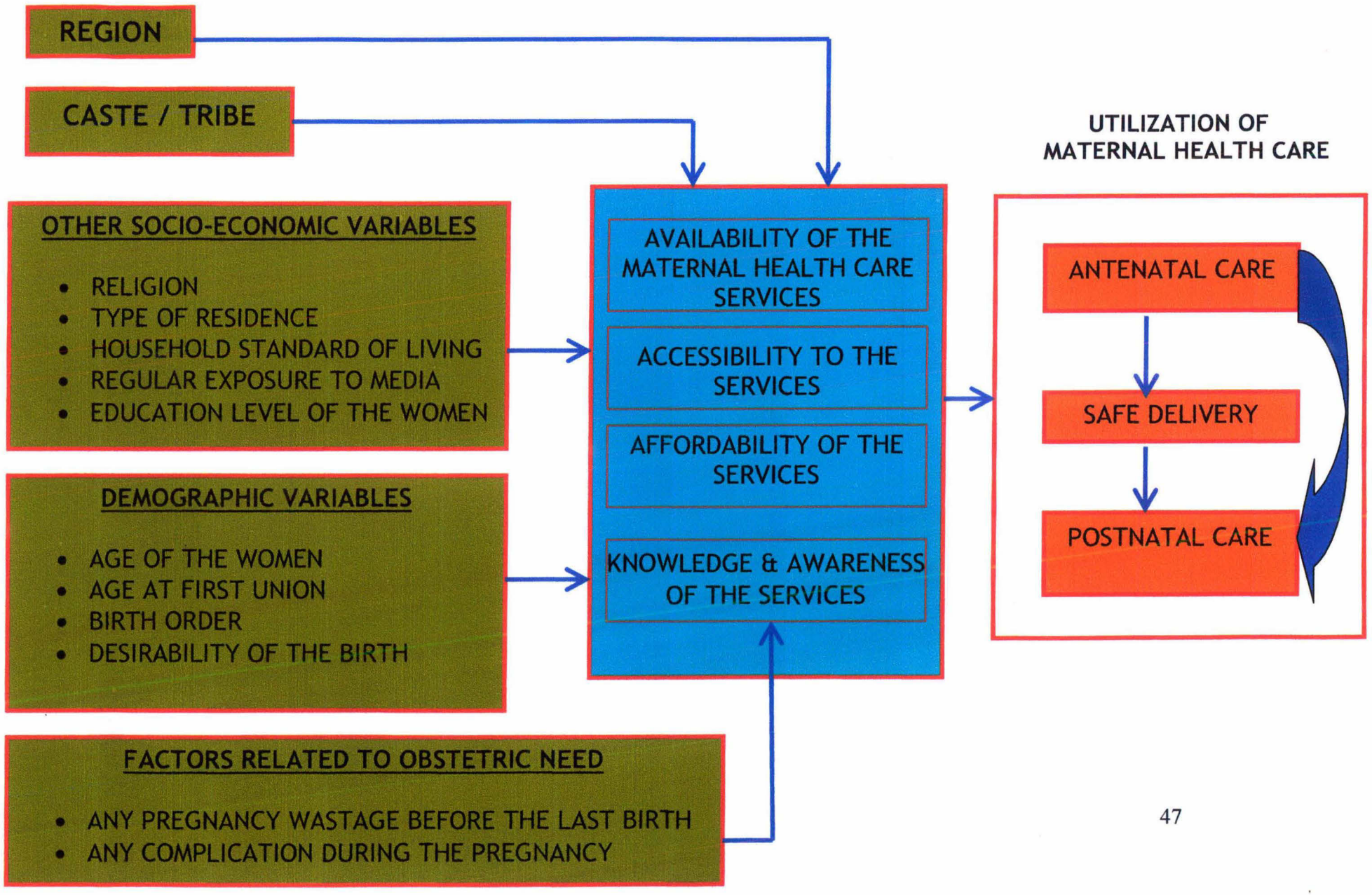
3.2.2 Socio-economic factors:

Various socio-economic factors indirectly or directly play an important role in utilization of maternal health care. These socio-economic factors include caste/tribe, education, standard of living, exposure to mass media, type of residence and religion. Here is a brief discussion of these factors—

Caste/Tribe

Caste/Tribe is also an important factor in India. It is closely tied to the social system in India. The scheduled caste, scheduled tribe, indigenous population with few exception are very poor and inhabit in inaccessible rural and hilly areas where they don't have easy access to health care services. Caste/tribe identity may also be associated with health beliefs that whether care is sought and whether that care is traditional or biomedical. These traditional beliefs affect the beliefs about illness causation, superstitions about illness and the cure of illness. The lower utilization of maternal health care by the above mentioned unprivileged

CONCEPTUAL FRAMEWORK



and backward groups of society can be attributed because of their lower socio-economic conditions.

Woman's educational level

Higher education is believed to be associated with increased use of maternal health care during pregnancy. Higher utilization of biomedical services among more educated women is believed to result in part from better allocation of financial and other resources, greater control over resources, and more autonomy in household decision making, greater self confidence and stronger demand for satisfactory service from health practices. On the other hand by creating social change along with subsequent changes produces new values and ideas which motivates to the adoption of modern health care practices.

Household standard of living

This makes the affordability possible. Moreover it is also possible that economically sound household will be educated and will demand for maternal health care.

Exposure to mass media

Exposure to mass media lets the woman know about various alternatives of the maternal health care services. It also exposes the women to the advantages of using those services and also the disadvantages of not using these. It increases the awareness about the services.

Type of place of residence

The type of place of residence determines the availability, accessibility, awareness of the maternal health care services. The physical access to heath delivery is not the major concern for the urban population. Most of the health care facilities are located in the urban areas. Moreover the external environment of the urban areas, the knowledge and awareness level and also the interaction with each other and the sharing of the information about the health acre facilities is also more in urban areas. Thus the utilization is more in the urban areas.

Religion

In India the important religious communities are- Hindu, Muslim, Christians, Sikhs, Buddhists and Jains. The religion is also an important social factor to influence the utilization pattern of maternal health care services. Different religious communities have different norms and beliefs regarding marriage, childbearing and family planning which has the effect on the maternal health seeking behavior.

3.2.3 Demographic factors

The demographic factors which influence the utilization of the maternal health care utilization are the following

Age of the woman

The age of the woman has an important role to play regarding the use of maternal services. Younger women are open to new ideas, are generally experiencing the lower parity may be first or second pregnancy. So the utilization is higher among them. On the other hand the older women who are generally multiparous women may be less inclined to seek care because of the experience of the pregnancies and child birth. But if the women are too young like the teenager women, the utilization of maternal health care can be low. The teenager motherhood itself shows the social backwardness of getting married in young age due to illiteracy, unawareness of the harms of young motherhood etc. moreover young women have very little mobility and have to depend on husbands or other family members to take them to the health centre, even if the care was free. The young women have a little say in household even regarding their health care.

Age at first union

Early age at first union may lead to early child bearing which is a serious health hazard for the women and the child born to her. It may cause complications like cephalopelvic disproportion resulting in prolonged or obstructed labor ruptured or prolapsed uterus infection and hemorrhage.

Birth order

Lower birth orders have the higher utilization of maternal health care utilization because of the newness, uncertainty, inexperience, and excitement. On the other hand higher the birth order, the previous experience related to pregnancy and childbirth restricts the women to go for maternal care services. Although age and parity (number of births per woman) are closely correlated, higher parity appears to have more of an effect on antenatal care use than age by itself

Desirability of the birth

The psychological factor act regarding the desirability of the birth and the utilization of the maternal health care services. If the child is wanted then more maternal care will given. And it will be desired to avoid all the risks.

3.2.4 Factors related to previous pregnancy outcomes and complications during pregnancy

Until and unless the risk is realized by the woman, the woman does not find it necessary to go for maternal health care facilities. The previous negative pregnancy outcome e.g. stillbirths, abortions, neonatal deaths, or cesarean delivery and experience of serious complications (e.g. hemorrhage or high blood pressure) make the woman realize about the risk factor. So there is an association between pregnancy complications and use of modern health services. A history of fetal loss or neonatal deaths has an important role on utilization of maternal care. It is positively related to receiving care during the first trimester in India (Bhatia & Cleland 1995, p. no.127-141). But this is also true that the choice of care depends more on perception of risk than on the modern definition of risk.

3.2.5 Intermediate factors

There are some factors which directly affect the utilization of maternal health care, but there are some factors which have the indirect effect on the utilization pattern. These factors are

called the intermediate factors. Following are some of the indirect factors influencing the maternal health seeking behavior.

Availability of the health services

This is an important factor affecting the utilization of health care services. There can be some undeveloped region where these facilities are not available. So there won't be any question of using them. So this is the first requisite factor for the utilization of the facilities. Sometimes if the facilities are present but the health personnel are not present, that is also considered as non-availability of the services.

Accessibility of the health care services

The availability of health services is often sited as a critical determinant of health care choices in the developing world. The accessibility of the health services can be of various types. It can be the physical accessibility i.e. the distance wise the facilities are very far. The beliefs, culture etc also restrict women to access to the health care facilities. The midwives, generally called 'dais' are highly respected in the rural areas who do not encourage women to go for modern facilities. In contrast, biomedical services particularly doctors and private clinics tend to be concentrated in larger communities with greater economic resources and public infrastructure. Lack of transportation, the cost of transport and the difficulty of waiting for hours to the nearest government health facility may also pose problems for pregnant woman. The behavior of the health acre providers also determines the access of the women to the health care facilities. 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.

Affordability of the health care services

The cost of services presents another important constraint on utilization. The average fee charged by doctors and other health professional for pregnancy and delivery care is generally

much higher than TBAs. Not only the actual cost but the anticipated cost may also deter the women from using the services.

Knowledge and awareness about the medical health care

Knowledge and awareness about the facilities is very important for utilization of maternal health care services. The government sponsored health centers are very affordable, offering maternal care almost for free; many women are unable to obtain needed medical supplies, even if services are accessible and affordable, because of the lack of know how. Sometimes the malfunction and corruption in the government health centers is not understood by poor and uneducated women and they don't raise their voice against this.

Earlier use of maternal health care services

The various component of maternal health care also affect each other. Mothers who received antenatal checkups are more likely to give birth in a medical institution then mothers who did not receive any antenatal checkup. Similarly mothers receiving antenatal checkups or institutional delivery tend to go for postnatal checkups. This is so because women receiving antenatal care come in contact with health care providers who are likely to encourage them to give birth in a medical facility or have a trained health professional's assistance during delivery or to have the postnatal checkups. The antenatal period clearly presents 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. For example, if the antenatal period is used to inform women and families about danger signs and symptoms and about the risks of labor and delivery, it may provide the route for ensuring that pregnant women do, in practice, deliver with the assistance of a skilled health care provider. The antenatal period provides an opportunity to supply information on birth spacing, which is recognized as an important factor in improving infant survival.

3.3 DATASOURCE:

One of the major objectives of the NFHS was to provide information on maternal and child health care practices. Hence individual level data for ever married women age 15-49

from women file of 2nd NFHS conducted in 1998-99 has been taken for the study. This survey was designed on the lines of the demographic and health survey (DHS) that have been conducted in many developing countries since 1980s. NFHS 2 collected demographic, socio-economic and health information from a nationally representative probability sample of more than 90,000 ever married women in the age group 15-49. All states of India are represented in the sample (except the small union territories) covering more than 99% of country's population.

The individual level data for ever married women in age group 15-49 for four states have been taken. These are - Bihar, Madhya Pradesh, Orissa and West Bengal to form a compact region 'Eastern-mid Indian Tribal Belt'.

The survey provides information on four caste/tribe groups namely, Scheduled Tribes (ST), Scheduled caste (SC), Other Backward Classes (OBC) and those who are neither ST nor SC nor OBC and are designated as 'Others'.

3.4 HYPOTHESIS:

- There is regional disparity in the utilization of maternal health care practices. Women belonging to less developed states are less likely to seek maternal health care services

- The maternal health care utilization by tribal women is lesser than that of non-tribal women, even after controlling the other socio-economic factors.

- There is disparity in the maternal health care utilization within the non-tribal social groups; as the non tribal social group comprises of SC, OBC and 'Others' (high caste groups) in the present study.

- Since the socio-economic and demographic conditions of the different tribal groups in different states vary, so the level of maternal health care utilization of the tribal of different states also varies.

3.5 METHODOLOGY:

This paper focuses on maternity care and attempts to analyze how various socio-economic and demographic factors influence the use of maternity services. The study seeks to analyze the social disparity in the utilization of maternal health care services. The emphasis has been given on the study of a particular group i.e. tribal women and the comparison with the non-tribal women has been investigated with reference to health care during pregnancy, delivery care, postnatal care and reasons for not receiving checkups.

The study of maternal heath care utilization has been done only for the four selected states – Bihar, Madhya Pradesh, Orissa and West Bengal. The result presented in this paper pertains only to the most recent birth or the last birth which took place within three years preceding the date of interview. The last birth in the last three years has been considered for the study to minimize recall lapse and mixing up of responses which is possible if the birth had taken place long back. This helps the respondent to answer all the survey questions to the level of accuracy. The other reason of considering the data of women who had births in the last three years is that in NFHS-2 itself the antenatal, natal and postnatal care questions have been asked to only those women who had births in the last three years. Thus the eligible women for the study of Antenatal, Natal and postnatal care in the present study are-for India- 28986, the eastern-mid-Indian tribal belt region- 7651, Bihar- 2640, Madhya Pradesh- 2520, Orissa- 1361 and West Bengal – 1130. The sample weight given by NFHS -2 has been employed and normalized.

The present study tries to analyze the utilization of maternal care in three stages – Antenatal, Intranatal and Postnatal care. Inequality by caste and tribe is examined with regard to the following utilization indicators selected in this study:

- Full ANC checkups
- Assistance by the trained health professional during delivery
- Postnatal care within two months of the delivery

The individual level data has been used for the study. The statistical analysis carried out in the study focuses on the examination of differential in maternal health care services by selected socio-economic and demographic factors.

Firstly, the gross differences in the background characteristics and maternal heath care indicators have been obtained with the help of bivariate analysis. The cross tabulation analysis between the utilization indicators and the cast/tribes in different states has been done to see variation in the utilization pattern of maternal health care according to caste/tribe factor alone. Secondly, the gross effect of the socio-economic and demographic factors on maternal health care utilization has been examined with the help of cross tabulation Bivariate analysis helps us to overview the general picture. Following are the maternal health care indicators selected for the bivariate analysis.

1) Percentage of women who had an antenatal check ups
2) Percentage of women who had full antenatal checkups (At least three ANC visits, IFA tablets given and at least one TT injection given.)
3) Percentage of women who had institutional delivery
4) Percentage of women who had safe delivery (delivery assisted by trained health professional)
5) Percentage of women who saw doctor within two months of the delivery.

Now to study inequality regarding each of the selected socio-economic background characteristics and the selected maternal health care utilization indicators among the four caste/tribe groups, a simple measure of association has been used. The four caste/tribe groups have been further narrowed down into two groups-tribal and non-tribals. The measure of association has been done for these two broad groups also. The weighted and normalized values from unit records of NFHS-2 data file for those women who had their last birth during the last three years prior to the date of survey has been used. For example, to understand whether distribution of women by STI (standard of living index) differs according to caste/tribe, a chi-square test of association between the two variables has been employed. If the test reveals significant value of χ^2 which indicates an association or inequality in the

distribution between two variables. The degree of association is also measure by computing $\sqrt{\chi^2}/N$. An association between caste/tribe and SLI reveals that women of different caste/tribe groups are not equal in terms of their distribution of SLI (Roy et al. 2004, p.no. 678).With the help of the value of $\sqrt{\chi^2}/N$, the three states of the 'study region' can be ranked. This will tell the extent of the differential in socio-economic indicators and also the differential in the maternal health care utilization indicators among the caste/tribe groups in different states of the 'study region'. Higher value of $\sqrt{\chi^2}/N$ indicates strong association which implies high inequality while the lower value indicates weak association which implies low inequality. In case of states with insignificant values of $\sqrt{\chi^2}$, there is no inequality between caste/tribe groups and the indicator taken.

Establishing an association between caste/tribe and either the maternal health care utilization indicators is not enough. The association may occur because of a difference in the distribution of women belonging to different caste/tribe by their socio-economic characteristics (Roy el al. 2004, p. no. 678). So, the gross effect of the various socio-economic and demographic factors on maternal health care utilization within each caste/tribe group has been examined with the help of cross tabulation. For this only three maternal health care utilization indicators- women having full ANC, women having safe delivery and women having seen the doctor within two months of delivery has been considered.

This is followed by multilevel ordered **Logistic regression analysis** which is used to explain the important determinants of utilization of maternal care services. This is done in order to estimate the net effect of each socio-economic and demographic variable on the likelihood of utilization of different health care services. Logistic regression analysis has been exercised because the dependent variables are dichotomous (reported yes or no). Logistic regression model makes it possible to estimate the probability of using health care, conditional on the independent variables included in the model. The technique of logistic regression is adopted for individual level data analysis (Rutherford & Choe)

The basic formula of the logistic regression is---

Logit (P) = (ln P/ (1- P)) = Z .....(1)

Where P = Probability of occurrence of the event (Dependent variable)

And $Z = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \text{---------} \beta_k X_k$ is a vector of parameters $\beta_0, \beta_1, \beta_2, \text{-----} \beta_k$ and predictor variables $X_0, X_1, X_2, \text{--------} X_k$

If Y is the response , then Y = 1 ; occurrence of the event , and P = Probability (Y =1)

The equation (1) postulates that the probability of occurrence of the event is influenced by a set of predictor variables in the manner specified with $\beta_0, \beta_1, \beta_2, \text{-----} \beta_k$, as the logistic regression coefficients.

The equation can be expressed as,

P = exp (Z) / (1 = exp (Z)) .....(2)

The quantity P / (1 – P) is called the odds, hence the quantity ln (p/ (1-p)) is called the log odds or the logit of P.

The coefficients are estimated using the method of maximum likelihood. The predictor variables should be numeric on a ratio scale. If the predictor variable is in the categorized form, it needs to be converted into dummy variables. Computer packages for the logistic regression have this provision of doing so and it is adequate to specify a categorized variable as such and note the reference category. In such cases, the ratio term exp (β_k) for a particular category k is the odd ratio, that is, the ratio of odds for the category k to the odds for the reference category. The odd ratio represents proportional increase (if greater than 1 or decrease (if less than 1) for each category of the predictor variable with respect to its reference category.

In order to estimate the effect of socio-economic and demographic factors on maternal health care utilization three dichotomous dependent variables are used—

1) Whether the woman had full ANC (Yes / No)
2) Whether the woman had safe delivery (Yes / No)
3) Whether the woman saw the doctor within two months of delivery (Yes / No)

Explanatory variable or independent variables used for the study:

Region

Caste/tribe of the woman

Type of residence

Religion

Education of the women

Standard of living index

Women's mass media exposure

Age of the women

Age at first union

Birth order

Desirability of the last birth

Any complication during the pregnancy

Any pregnancy wastage before the last birth

Note - All of these refer to the last birth the woman had in the last three years before the survey

3.6 MEASUREMENT OF THE VARIABLES

This section of the study explains how the available data in the NFHS 2 has been made usable for the study.

Dependent variables

Full ANC – the data for full ANC has not been calculated in NFHS. So this has been computed by combining the women who had at least three antenatal visits and one TT injection and IFA tablets given. This is dichotomous variable which has been recoded as following

0= No

1= Yes

Safe delivery – this has been computed by combining the assistance during delivery either by doctor, or by nurse or by any trained health worker. The recoding is like the following

0= No

1= Yes

Postpartum care – the woman saw the doctor within two months of delivery has been taken as the indicator of postpartum care. The recoding is like following

0= No

1= Yes

Independent variables

Region

1 = Bihar **(RC)**

2 = Madhya Pradesh

3 = Orissa

4 = West Bengal

Caste / ethnicity of the woman

1 = Others **(RC)**

2 = Other backward class

3 = Scheduled caste

4 = Scheduled tribe

Place of residence

1 = Rural **(RC)**

2 = Urban

Religion

1 = Hindu **(RC)**

2 = Muslim

3 = Christian

4 = Others

Highest education level of the woman

1 = Illiterate **(RC)**

2 = Literate, < middles school complete

3 = Middle complete and above

Household standard of living index

1 = low **(RC)**

2 = Medium

3 = High

Regular exposure to mass media

0 = No **(RC)**

1 = Yes

Age of the woman

1 = 20-29 **RC)**

2 = 15-19

3 = 30- 49

Age of the woman at first union

1= less than 18years **(RC)**

2 = 18 and above

Birth order of the last birth

1 = 4^{th} and above **(RC)**

2 = 3^{rd}

3 = 2^{nd}

4 = 1^{st}

Any pregnancy wastage before the last birth

0 = No **(RC)**

1 = Yes

Any complication during pregnancy

0 = No **(RC)**

1 = Yes

Desirability of the last birth

1 = wanted then **(RC)**

2 = Mistimed

3 = Unwanted

Note: RC= reference category

3.7 LIMITATION OF THE STUDY

Not only the use but also the timing of use is important for the maternal health care to be successful. The delay in the maternal health care is very dangerous. But there is data limitation on this. Moreover the traditional belief, culture perception about risk, perception about causation of illness, need for health care are also important areas to work on but the present study has the limitation. The data from secondary sources has been used where all these aspects cannot be dealt with details. So for such requirements primary level data is useful. Also, only the demand factors have been discussed in the study as the determinants of maternal health care utilization. The supply factors have not been discussed. In the present study, only one region 'Eastern mid Indian Tribal belt' has been taken for the study which comprises of only four states. In the higher level of study the entire country can be divided into various regions and inter regional study can be done.

CHAPTER 4

SOCIAL INEQUALITY IN THE UTILIZATION OF MATERNAL HEALTH CARE SERVICES

CHAPTER 4

SOCIAL INEQUALITY IN MATERNAL HEALTH CARE UTILISATION

In this chapter the differential in maternal health care utilization is analyzed for the states of Bihar, Madhya Pradesh, Orissa and West Bengal, for the 'study region' i.e. Eastern- Mid-Indian Tribal Belt (4 states together) and for India by caste/tribe of the woman to see the condition of maternal health care utilization among scheduled tribe women as compared to non-scheduled tribe women. These pertain to the last pregnancy of the women during the period of three years prior to the survey. The sample weights provided by NFHS-2 for all India and for states have been employed and normalized. The 'study region' means Eastern-Mid–Indian tribal belt comprising four states- Bihar, Madhya Pradesh, Orissa and West Bengal.

First, caste/tribe composition in these states with special emphasis on ST woman are described according to the percentage distribution of all ever married women in various social groups who have given their last birth in the last three years preceding the date of survey.

4.1 CASTE/TRIBE COMPOSITION IN EASTERN- MID- INDIAN STATES

In this section, a state-wise caste/tribe composition in eastern- mid- Indian states has been discussed. The results are presented as percentage to the total number of women who had their last birth in the last three years prior to the date of survey.

From **table 4.1** it is clear that the highest percentage of ST women are in Madhya Pradesh (24.6 percent) followed by Orissa (22.2 percent). West Bengal has 7.4 percent tribal women. In Bihar the ST women are only 7 percent. In the four states together the ST women are 13.6 percent which is much higher than the India's average of 9.5 per cent (about 1.5 times). In all

the selected study states ST women are the least in number in the social composition, except in Madhya Pradesh where SC women are the least in number.

TABLE 4.1
Caste/Tribe Composition of Ever Married Women in Selected States, India, NFHS-2 (1998-99)

(Figures in percentage)

	Others	OBC	SC	ST	Total	Total no. of women (Unweighted)
Bihar	18.0	52.5	22.5	7.0	100	2640
Madhya Pradesh	17.1	41.5	16.8	24.6	100	2520
Orissa	23.9	31.4	22.5	22.2	100	1361
West Bengal	64.5	3.7	24.4	7.4	100	1130
Study Region	29.3	35.7	21.4	13.6	100	7651
India	38.4	32.2	19.9	9.5	100	28986

Note: Percentages are obtained by applying weight
OBC=Other Backward Class; SC=Scheduled Caste; ST=Scheduled Tribe
Source: Computed from unit records of NFHS-2 data files (1998-99)

Now the following table shows the proportion of women in different social groups in the study states to the total women in India by different social groups.

TABLE 4.2
Percentage of Women in Different Social Groups in India, NFHS-2 (1998-99)

	Others	OBC	SC	ST	All
Bihar	5.5	19.2	13.3	8.6	11.8
Madhya Pradesh	3.9	11.2	7.4	22.4	8.7
Orissa	2.2	3.4	3.9	8.1	3.5
West Bengal	12.4	0.8	9.0	5.7	7.3
Study Region	23.9	34.6	33.6	44.8	31.3
Rest of the states	76.1	65.4	66.4	55.2	68.7
India	100.0	100.0	100.0	100.0	100.0

Note: Percentages are obtained by applying weight
OBC=Other Backward class; SC=Scheduled Caste; ST=Scheduled Tribe
Source: Computed from unit records of NFHS-2 data files (1998-99)

The above table shows that the selected study states together comprise 45 percent of the total tribal women of the country who gave their last birth in the last three years preceding to

the date of the survey. Among the study states Madhya Pradesh alone comprises 22.4 percent of the total tribal women of India.

The following table shows that half of the tribal women of eastern- mid- Indian regions is in Madhya Pradesh (50.1%) which is followed by Bihar, Orissa and West Bengal.

TABLE 4.3
Percentage of Women in Different Social Groups in Eastern-Mid-Indian Tribal Belt, NFHS-2 (1998-99)

	Others	OBC	SC	ST	All
Bihar	23.0	55.5	39.7	19.3	37.6
Madhya Pradesh	16.2	32.3	21.9	50.1	27.8
Orissa	9.0	9.8	11.6	18.0	11.1
West Bengal	51.7	2.4	26.8	12.6	23.5
Study Region	100.0	100.0	100.0	100.0	100.0

Note: Percentages are obtained by applying weight
Source: Computed from unit records of NFHS-2 data files (1998-99)

4.2 DIFFERENTIAL IN SOCIO-ECONOMIC CHARACTERISTICS AMONG CAST/TRIBE GROUPS

The socio-economic characteristics play an important role in determining the utilization pattern of maternal health care utilization. **Table 4.4** presents the inequalities with respect to some selected socio-economic background characteristics by different social groups.

In all the states, and in all the caste/tribe categories, majority of the women reside in rural areas. The inter caste/tribe category analysis shows that the percentage of women residing in rural areas is highest for ST women in all the states. The inter-state analysis shows that the maximum percentage of ST women residing in rural areas is in West Bengal (98.8 per cent), followed by Bihar (96.3 per cent), Orissa and Madhya Pradesh.

In all states and all caste/tribe categories, majority are Hindus. Muslims mostly belong to 'Others' category. In all states there are no ST women who belong to Muslim community.

TABLE 4.4

Percentage of Women in Different Caste/Tribe Category by Different socio-economic Characteristics, NFHS -2 (1998-99)

Background characteristics															
Caste/ Tribe	Residence		Religion				Education			Std. of living			Media Exp.		Total Women (Un weight)
	Rural	Urban	Hindu	Muslim	Christian	Other	Illiterate	<mid comp	Mid& above	Low	Mid	High	Yes	No	
INDIA															
Others	71.5	28.5	64.6	30.6	1.7	3.1	47.0	20.9	32.1	25.7	49.0	25.4	61.6	38.4	11295
OBC	79.3	20.7	87.4	10.4	1.2	1.0	60.1	17.2	22.7	34.9	51.3	13.9	53.9	46.1	8215
SC	82.1	17.9	90.7	2.1	2.9	4.3	71.3	14.5	14.2	53.0	41.1	6.0	47.1	52.9	5292
ST	90.2	9.8	87.5	1.4	8.0	3.1	76.9	12.9	10.2	54.1	41.5	4.5	34.6	65.4	4184
non ST	76.6	23.4	78.5	17.1	1.8	2.6	57.0	18.2	24.8	35.0	48.0	17.0	55.7	44.3	24802
All	77.9	22.1	79.2	15.7	2.4	2.7	58.9	17.7	23.4	36.8	47.4	15.8	53.7	46.3	28986
EASTERN-MID-INDIAN TRIBAL BELT															
Others	79.7	20.3	61.7	36.6	0.5	1.2	45.1	27.9	27.0	38.1	43.6	18.3	56.5	43.5	2040
OBC	85.4	14.6	87.1	12.8	0.0	0.1	70.5	15.4	14.1	44.9	44.8	10.2	37.6	62.4	2920
SC	86.8	13.2	97.4	1.9	0.4	0.3	76.4	14.1	9.5	66.8	29.4	3.8	35.6	64.4	1582
ST	95.2	4.8	92.1	0.5	3.9	3.5	85.5	9.3	5.2	61.5	36.2	2.3	24.4	75.6	1109
non ST	83.8	16.2	81	18.2	0.3	0.5	63.4	19.3	17.3	48.0	40.6	11.4	43.5	56.5	6542
All	85.4	14.6	82.5	15.8	0.8	0.9	66.3	18.0	15.7	49.9	40.0	10.1	40.9	59.1	7651
BIHAR															
Others	87.9	12.1	57.2	42.4	0.0	0.4	56.3	15.4	28.3	37.3	41.7	21.0	42.0	58.0	475
OBC	91.4	8.6	81.9	18.1	0.0	0.0	78.9	9.7	11.4	53.2	40.7	6.2	25.3	74.7	1398
SC	92.5	7.5	95.7	3.8	0.3	0.2	87.7	5.5	6.8	78.1	18.7	3.2	18.2	81.8	592
ST	96.3	3.7	82.9	2.7	8.0	6.4	84.4	7.0	8.6	73.8	25.7	0.5	11.2	88.8	175
non ST	91	9	80.5	19.3	0.1	0.1	76.6	9.8	13.6	56.1	35.5	8.3	26.8	73.2	2465
All	91.4	8.6	80.7	18.1	0.6	0.6	77.2	9.6	13.2	57.4	34.9	7.8	25.7	74.3	2640
MADHYA PRADESH															
Others	61.4	38.6	80	14.1	0.5	5.4	42.2	22	35.8	14.5	49.2	36.3	72.0	28.0	471
OBC	76.1	23.9	91.6	8.2	0.0	0.2	65.2	19.7	15.1	31.4	52.4	16.2	54.4	45.6	1044
SC	78.1	21.9	99	0.5	0.0	0.5	78.3	14.3	7.4	50.5	42.9	6.7	44.3	55.7	428
ST	94.1	5.9	96.9	0.0	3.1	0.0	87.0	8.8	4.2	49.0	47.4	3.6	31.9	68.1	577
non ST	73.2	26.8	90.7	7.8	0.1	1.4	62.9	19.0	18.1	31.8	49.5	18.6	56.2	43.8	1943
All	78.3	21.7	92.2	5.9	0.8	1.1	68.8	16.5	14.7	36.1	49	14.9	50.2	49.8	2520
ORISSA															
Others	85.3	14.7	90.5	6.7	2.8	0.0	27.9	37.7	34.4	33.7	45.7	20.6	67.9	32.1	339
OBC	88.8	11.2	98.8	0.9	0.2	0.0	51.2	30.1	18.7	46.6	43.1	10.3	44.5	55.5	432
SC	91.9	8.1	98.0	0.0	2.0	0.0	71.4	17.9	10.7	75.2	23.9	1.0	35.8	64.2	300
ST	94.4	5.6	96.7	0.0	3.3	0.0	88.7	7.3	4.0	79.5	19.5	1.0	13.6	86.4	290
non ST	88.6	11.4	96.1	2.4	1.5	0.0	49.8	28.9	21.3	50.8	38.4	10.7	49.2	50.8	1071
All	89.9	10.1	96.2	1.9	1.9	0.0	58.5	24.1	17.4	57.2	34.2	8.6	41.3	58.7	1361
WEST BENGAL															
Others	80.6	19.4	52.9	46.3	0.3	0.5	43.9	33.7	22.4	46.6	42.3	11.1	56.1	43.9	755
OBC	57.1	42.9	97.6	2.4	0.0	0.0	28.5	28.6	42.9	30.2	46.5	23.3	65.9	34.1	46
SC	83.4	16.6	98.6	1.1	0.0	0.4	60.3	25.3	14.4	59.6	36.8	3.6	54.2	45.8	262
ST	98.8	1.2	80.7	0.0	1.2	18.1	77.3	16.7	6.0	67.5	31.3	1.2	30.1	69.9	67
non ST	80.5	19.5	66.7	32.6	0.2	0.5	47.7	31.2	21.1	49.4	41.0	9.6	56.0	44.0	1063
All	81.8	18.2	67.7	30.2	0.3	1.8	49.8	30.2	20.0	50.7	40.4	9.0	54.1	45.9	1130

Note: The figures pertain to only those women who had their last birth in the last three years prior to the date of survey
Percentages are obtained by applying weights
non ST= OBC&SC&'Others' together
Education= highest education level of the woman
Media exp.= Exposure to any of the media (TV, Radio, Newspaper or Cinema)

Source: Computed from unit records of NFHS-2 data file.

except in Bihar (2.7 per cent). In every state, most of the Christians are Scheduled Tribe. Christianity is the second mostly accepted religion among scheduled tribes. This is probably because of the influence of Christian missionaries in the tribal areas. In Bihar, 8 percentage ST women are Christian which is the maximum in all the states. In west Bengal, a sizable number (18.1 per cent) of ST women belong to other religion (Buddhists, Jains etc.)

In case of literacy, ST women are the most disadvantaged section of society having the highest illiteracy rate among all the caste/tribe categories in all the states (76.8 per cent in India, 85.5 per cent in 'study region'), except in Bihar where SC women are the least literate. The table shows that the illiteracy among ST women is about 1.5 times more than in non-ST women. Maximum illiterate ST women are in Orissa (88.7 per cent) followed by Madhya Pradesh (87 per cent)and Bihar (84.5 per cent). In Orissa, the percentage of illiterate ST women is about 1.8 times higher than that of non-ST women. Situation of ST women is better in West Bengal as compared to other states, where 77.4 percent ST women are illiterate.

Poverty as indicated by low standard of living index (SLI) of the household is highest among ST women. More than half, i.e. 54 and 62 percent ST women come from households with low standard of living in India and Eastern-mid-Indian tribal belt respectively. On the contrary, in the 'Others' category, hardly one-fourth women are from low SLI households in India. The percentage of low SLI women among the most disadvantaged category (ST) is more than twice the percentage in the category which is in the best situation ('Others') in India. The Eastern-mid-Indian tribal belt is economically lagging behind the national averages. In this region, 50 per cent of the total women belong to households of low SLI which is much higher than the figure of 37 per cent in India. The poorest among all the states is Bihar and Orissa where 57 per cent of the total women have the low SLI of the household. The ST women are the poorest in Orissa, followed by Bihar where 80 and 74 per cent of ST women respectively belong to households of low SLI.

For the regular exposure of any media, the women in 'Others' category is more than twice exposed to media than ST women in Eastern mid Indian Tribal region. In Orissa, this differential is more than five times and in Bihar, it is nearly four times.

Thus the above discussion shows the socio-economic backwardness of ST women in comparison to non-ST women in India and in all the states of the study region. But in different states, the level of socio-economic conditions of ST women varies.

4.3 DIFFERENTIAL IN VARIOUS INDICATORS OF MATERNAL HEALTH CARE BY DIFFERENT CASTE/TRIBE GROUPS

In this section the bivariate analysis is conducted for the maternal health care utilization indicators against the Caste/Tribe groups with special emphasis on ST women. The percentages of maternal health care utilization indicators are calculated for the Caste/Tribe groups to understand the variation in the behaviour of utilization of maternal health care by different social groups. Each maternal healthcare utilization indicator is discussed separately for the various social groups in the study area.

4.3.1 Antenatal care

Promotion of maternal and child health has been one of the most important objectives of the family welfare programme in India. Provision of antenatal care including at least three antenatal care visits, iron folic tablets for pregnant and lactating mothers, detection and treatment of anaemia and other risk factors and complications during pregnancy is one of the most important components of maternal care .The safe motherhood initiative proclaims that all the pregnant women must see basic professional antenatal care (Harrison, 1990).

TABLE 4.5
Percentage of Women Using Antenatal Care Services in Different States by Caste/Tribe categories, NFHS-2 (1998-99)

TABLE 4.5(A

Antenatal Care Indicators	INDIA						STUDY REGION					
	ST	non ST	non ST			All	ST	non ST	non ST			All
			Other	OBC	SC				Other	OBC	SC	
Antenatal visits												
No visit	43.3	33.3	29.0	35.2	38.4	34.3	49.7	37.5	22.4	48.3	40.2	39.2
Less than three	28.4	20.8	21.5	18.2	23.5	21.5	30.9	27.0	27.5	25.0	29.5	27.5
At least three	28.3	45.9	49.5	46.6	38.0	44.2	19.4	35.5	50.1	26.7	30.3	33.3
At least one	56.7	66.7	71.0	64.8	61.6	65.7	50.3	62.5	77.6	51.7	59.8	60.8
Given TT injection during pregnancy												
Yes	60.7	77.4	80.1	76.3	74.1	75.8	58.3	76.9	87.1	70.7	73.2	74.4
No	39.3	22.6	19.9	23.7	25.9	24.2	41.7	23.1	12.9	29.3	26.8	25.6
Given IFA tablets												
Yes	48.9	59.0	62.8	57.1	54.8	58.1	42.5	48.3	60.9	39.1	46.2	47.5
No	51.1	41.0	37.2	42.9	45.2	41.9	57.5	51.7	39.1	60.9	53.8	52.5
Given enough IFA tablets												
Yes	82.1	82.7	81.8	84.8	81.1	82.6	81.2	81.4	80.7	83.2	80.3	81.4
No	7.9	17.3	18.2	15.2	8.9	17.4	18.8	18.6	19.3	16.8	19.7	18.6
Full ANC												
Yes	23.3	39.0	41.5	39.9	32.5	37.5	15.0	27.7	40.0	19.8	24.1	26.0
No	76.7	61.0	58.5	60.1	67.5	62.5	85.0	72.3	60.0	80.2	75.9	74.0
Total women (unweighted)	**4184**	**24802**	**11295**	**8215**	**5292**	**28986**	**1109**	**6542**	**2040**	**2920**	**1582**	**7651**

TABLE 4.5 (B)

Antenatal Care Indicators	BIHAR						MADHYA PRADESH					
	ST	non ST	non ST			All	ST	non ST	non ST			All
			Other	OBC	SC				Other	OBC	SC	
Antenatal visits												
No visit	71.7	63.5	51.3	63.8	72.8	64.1	55.7	32.6	22	35.1	37.1	38.3
Less than three	16.6	18.3	20.4	18.8	15.6	18.2	30.8	34.1	33.4	32.3	39.3	33.3
At least three	11.8	18.1	28.3	17.4	11.6	17.7	13.5	33.3	44.6	32.6	23.6	28.5
At least one	28.3	36.5	48.9	36.2	27.2	35.9	44.3	67.4	78	64.9	62.9	61.7
Given TT injection during pregnancy												
Yes	46.2	65.5	76.9	64.9	57.7	64.2	52.3	76.2	85.4	74.2	71.8	70.3
No	53.8	34.5	23.1	35.1	42.3	35.8	47.7	23.8	14.6	25.8	28.2	29.7
Given IFA tablets												
Yes	21.5	24.3	35.8	23	18.2	24.1	36.4	54.5	62.9	53	49.6	50
No	78.5	75.7	64.2	77	81.8	75.9	63.6	45.5	37.1	47	50.4	50
Given enough IFA tablets												
Yes	73.2	82.9	90.1	81.3	75.9	82.2	77.6	77.9	78	80.2	72	77.9
No	26.8	17.1	9.9	18.7	24.1	17.8	22.4	22.1	22	19.8	28	22.1
Full ANC												
Yes	8.5	11.6	21.4	10.3	7	11.4	9.1	26.3	35.4	26.2	17.4	22.1
No	91.5	88.4	78.6	89.7	93	88.6	90.9	73.7	64.6	73.8	82.6	77.9
Total women (unweighted)	**175**	**2465**	**475**	**1398**	**592**	**2640**	**577**	**1943**	**471**	**1044**	**428**	**2520**

Table contd.

TABLE 4.5 (C)

Antenatal Care Indicators	ORISSA						WEST BENGAL					
	ST	non ST	non ST			All	ST	non ST	non ST			All
			Other	OBC	SC				Other	OBC	SC	
Antenatal visits												
No visit	35.6	15.0	15.1	14.7	15.3	19.6	12.2	9.2	10.9	2.4	5.4	9.4
Less than three	37.0	31.2	24.0	32.6	36.8	32.5	45.1	32.3	29.4	40.5	38.6	33.2
At least three	27.4	53.8	60.9	52.7	47.9	47.9	42.7	58.5	59.6	57.1	56.0	57.4
At least one	64.4	85.0	84.9	85.3	84.7	80.4	87.8	90.8	89.1	97.6	94.6	90.6
Given TT injection during pregnancy												
Yes	64.9	86.3	88.9	85.3	84.6	81.5	92.6	92.1	91.8	97.6	92.1	92.1
No	35.1	13.7	11.1	14.7	15.4	18.5	7.4	7.9	8.2	2.4	7.9	7.9
Given IFA tablets												
Yes	58.6	71.1	73.5	73.2	66.0	68.4	76.5	71.5	69.3	83.3	75.5	71.9
No	41.4	28.9	26.5	26.8	34.0	31.6	23.5	28.5	30.7	16.7	24.5	28.1
Given enough IFA tablets												
Yes	86.4	93.5	94.5	92.0	94.6	92.2	85.5	78.5	76.9	88.6	80.9	79.1
No	13.6	6.5	5.5	8.0	5.4	7.8	14.5	21.5	23.1	11.4	19.1	20.9
Full ANC												
Yes	23.5	45.8	52.6	45.8	38.4	40.8	36.6	48.0	47.7	50.0	48.7	47.2
No	76.5	54.2	47.4	54.2	61.6	59.2	63.4	52.0	52.3	50.0	51.3	52.8
Total women (unweighted)	**290**	**1071**	**339**	**432**	**300**	**1361**	**67**	**1063**	**755**	**46**	**262**	**1130**

Note: The figures pertain to only those women who had their last birth in the last three years prior to the date of survey
Percentages are obtained by applying weights
non ST= OBC & SC & 'Others' together

Source: Computed from unit records of NFHS-2 data file.

A pregnant woman can have antenatal check up by visiting a doctor or another health professional in a medical facility, receiving a home visit from a health worker or both. **Table 4.5** presents the differential in utilization of selected antenatal care indicators by caste/tribe categories.

In India about one-third (34.3 per cent) of the total women did not have any antenatal visit during their last pregnancy. Only about less than half (44.2 per cent) had three visits. There is Caste/Tribe variation in this practice .The scheduled tribe women are least having antenatal visit as compared to the other social groups. Only about one-fourth (28.3 per cent) of the tribal women are going for necessary three antenatal visits. About 43.3 percent tribal women are not having any antenatal visits. (Table 4.5 A)

The ST women have the least initiative for antenatal visits in all the states studied here. In the 'study region' about 50 percent tribal women are not having any antenatal visits. Only

one-fifth (19.4 per cent) ST women go for necessary three antenatal visits. This figure is about double (35.5 per cent) for non-St women. The state wise figures show that in Bihar, the condition of ST women is the worst where 72 percent tribal women and in Madhya Pradesh 55 percent women are not having any antenatal visit. In Orissa 36 per cent tribal women had no antenatal visit. West Bengal is the best performing state where only 12 per cent tribal women are not having any antenatal visit.

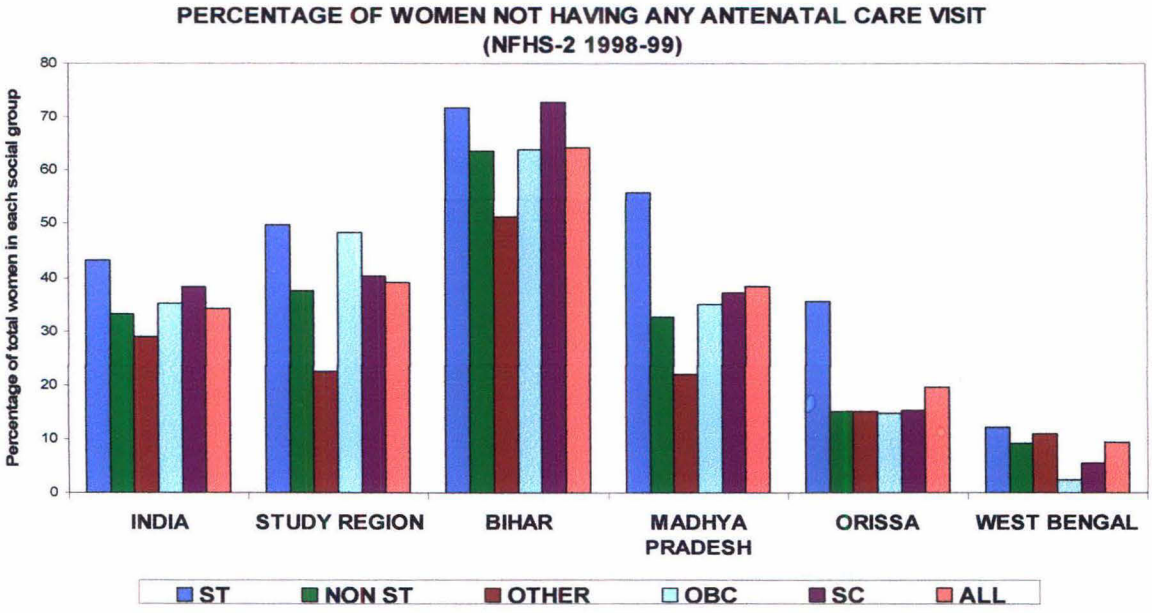
In all the studied states including study 'region' and also in the country as a whole, the ST women are the worst performer in terms of utilization of maternal healthcare services. SCs come second from bottom and then come OBCs. The 'Others' who are generally high castes are the best in utilizing the antenatal care services.

If the categories (social groups) are reduced into two groups as-Tribal and Non-tribal women, the differential shows that in India as well as the 'study region' the incidence of no antenatal visit is 1.3 times higher among the ST women as compared to the non-ST women .This difference is maximum in Madhya Pradesh where it is 1.7 times .As far as the necessary three antenatal visits is concerned the non-ST women are about 1.6 times more active in India and 1.3 times in the 'study region' than the ST women.

Among the individual states the condition of ST women in terms of antenatal visit is the most serious in Bihar where only 28.3 percent ST women had any one antenatal visit and only11.8 percent of them had three antenatal visits. Then comes Madhya Pradesh where these figures are 44.3 and 13.5 percent respectively. In Orissa the condition is better where 64.4 percent ST women had at least one antenatal visit and more than one-fourth of the tribal women i.e. 27.4 percent had three antenatal visits. The best performing state is West Bengal where 87.8 percent had at least one antenatal care visits and 42.7 percent had at least three antenatal care visits **(Fig.4.1)**. But when considered the ST and Non ST differential, the big difference is seen in Orissa where ST women are 2.3 times less going for any antenatal checkups. Regarding at least three antenatal care visits, it is twice among non- STs as compared to that of STs. The least gap in terms of any antenatal visit is seen in Bihar. The

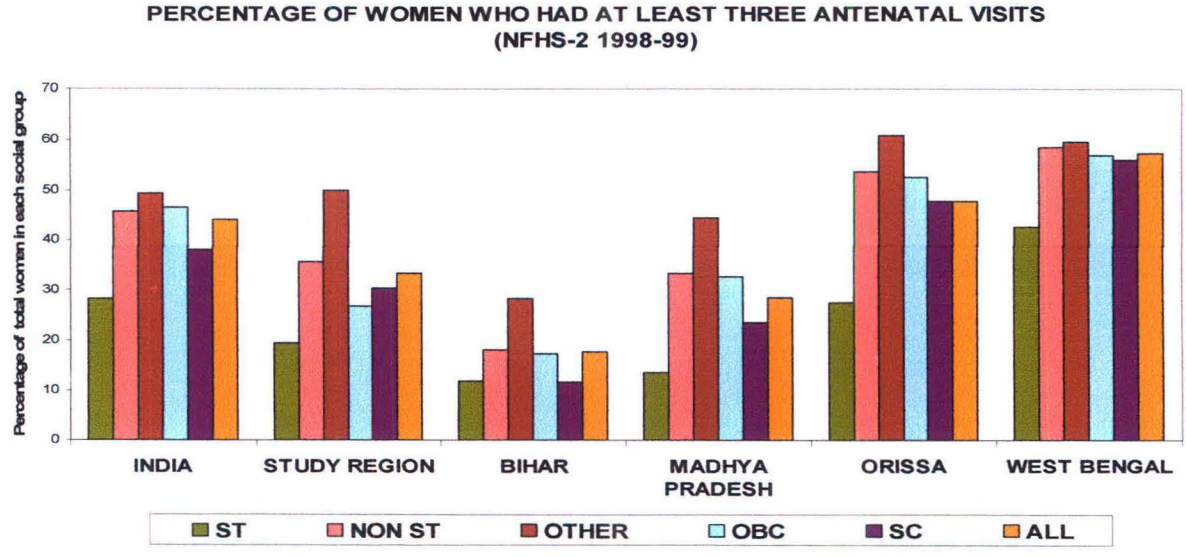
least gap in Bihar is because the facilities are not enough for both STs & non-STs (Table 4.5 'B' and 'C'). **(Fig. 4.2)**

Figure 4.1



Source: Table 4.5

Figure 4.2



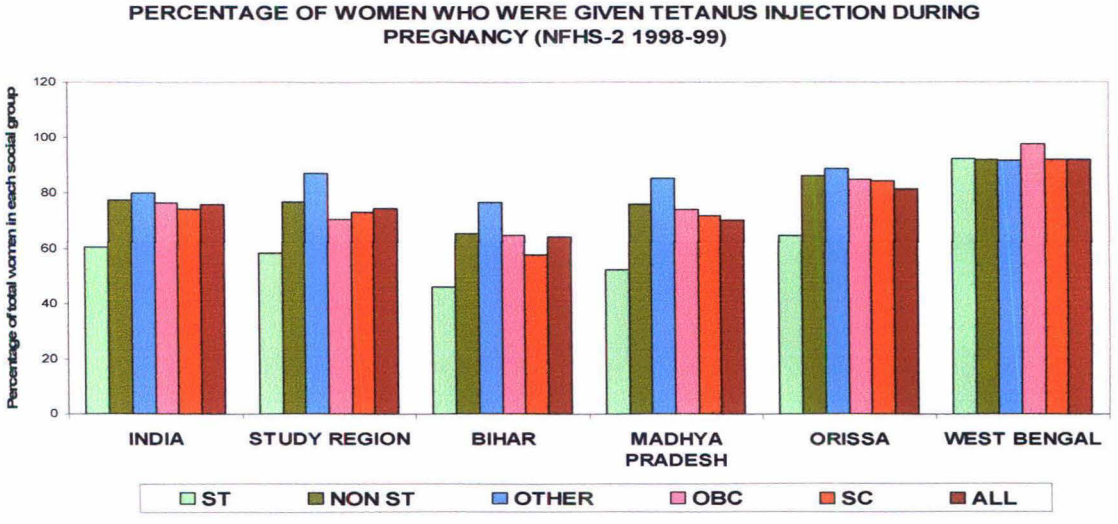
Source: Table 4.5

As far as the other components of antenatal care are concerned in India, 60.7 percent ST women are given TT injection during pregnancy. This figure is very less as compared to 80.1

percent among 'Others', 76.3 percent among OBCs and 74.1 percent among SCs. The ST and Non ST differential shows that non- ST women are 1.3 times more given TT injection than ST women.

The variation in TT injection during pregnancy is more pronounced in the 'study region' where it is only 58.3 percent among ST women as compared to 87.1 among 'Others'. Among the individual states the condition of ST women is best in West Bengal where 92.6 percent ST women have been given TT injection. Here the ST and non-ST gap is almost nil **(Fig.4.3)**. Both the STs and non-ST women are in better situation as compared to the other three states in the 'study region'. This shows the endowment of the state in terms of maternal health care facilities. The worst condition of ST women is in Bihar where less than half of them (46.2 per cent) are given TT injection.

Figure 4.3

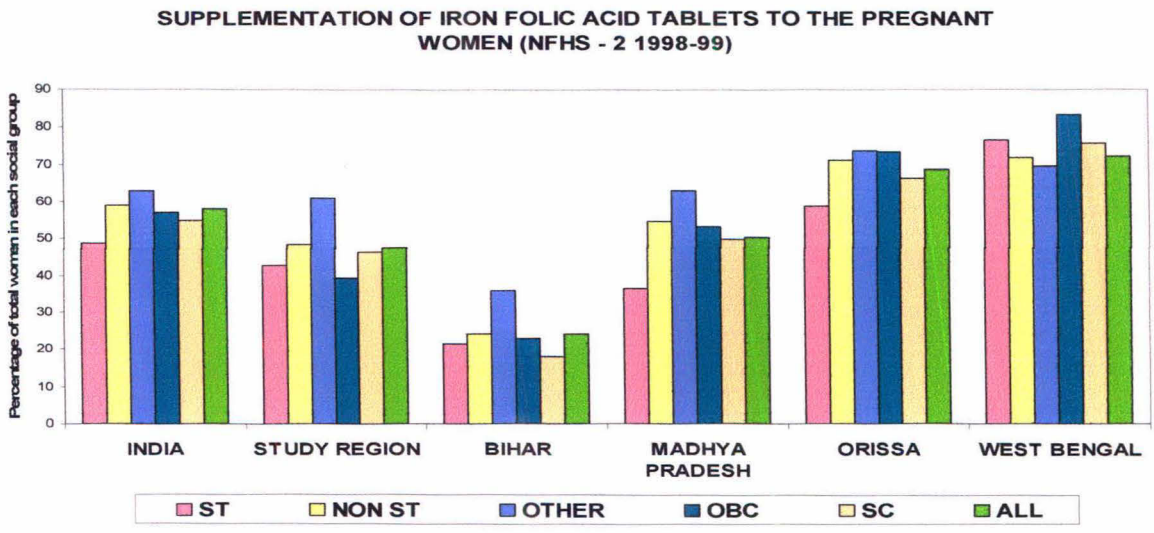


Source: Table 4.5

Iron and folic acid tablets are other important supplements given to the pregnant women. Here also the ST women are the least provided with IFA tablets among all social groups. In India as whole less than half of the ST women (48.9 per cent) are given IFA tablets. This figure is lesser in the 'study region' (42.5 per cent). This again shows the inferior position of Eastern-mid-Indian tribal belt to the national averages **(Fig.4.4)**. Again the condition is the worst in Bihar and the best in West Bengal It is seen that in India as well as in the 'study region' the percentage of ST women having 'enough' IFA tablets is more than non- ST

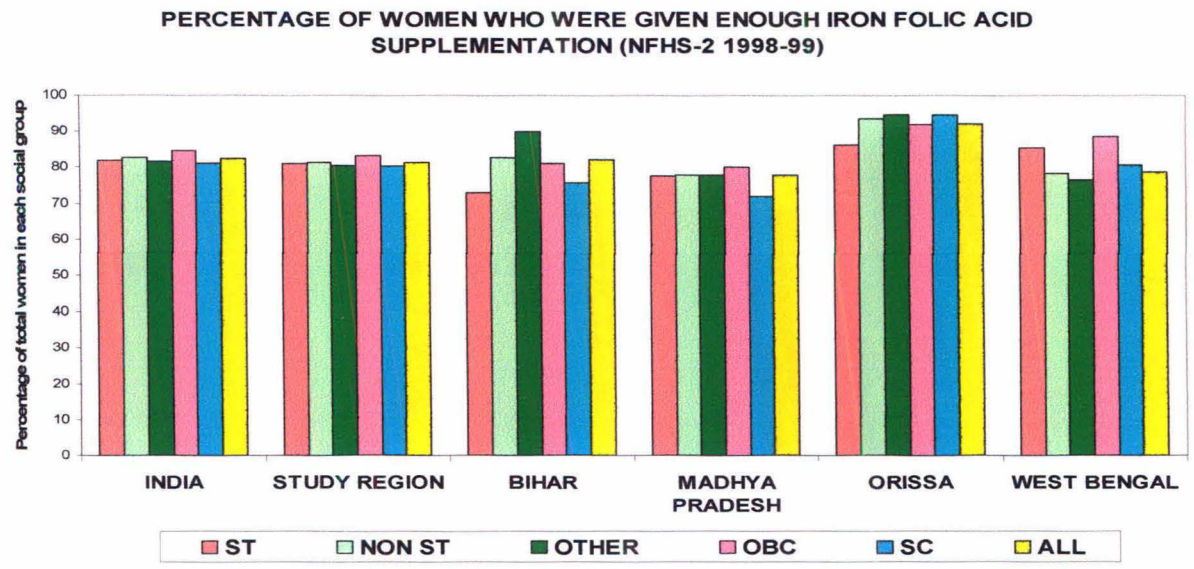
women **(Fig.4.5)**. This shows that if provided with the facilities the ST women are ready to use them. Among the individual study states the ST women in West Bengal are performing better than non-ST women in terms of using IFA tablets.

Figure 4.4



Source: Table 4.5

Figure 4.5

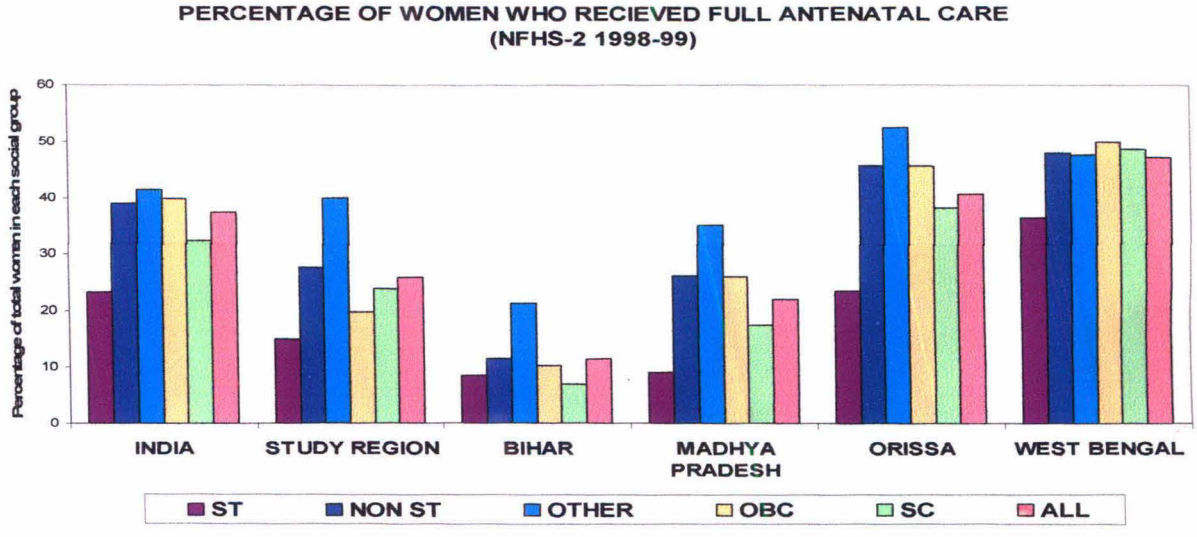


Source: Table 4.5

In case of full antenatal care the data shows that in India only 37.5 percent of the women get full antenatal care. This figure for the ST women is much less than the national average

(only 23.3 percent). In the study region the ST- non ST differential is 1.8 times, where only 15 per cent ST women get full antenatal care as against 27.7 percent non-ST women. In terms of full antenatal care the worst performing state is Bihar where only 8.5 percent ST women receive full antenatal care. The ST non ST differential is maximum in Madhya Pradesh where non-ST women receive 2.8 times more full antenatal care than ST women .The best performance by ST women is again in West Bengal.

Figure 4.6



Source: Table 4.5

Thus the cast /tribe variation in the antenatal care utilization shows that the ST women are the least users of antenatal care. The best performing social group is the high caste group and then comes OBCs and SCs. In terms of regional variation the condition is worse in Bihar, whereas it is better for West Bengal. In Bihar not only the condition of ST women is worse but also of the other social groups as compared to that in other states. When compared to that of India, the eastern mid Indian tribal belt is inferior to national averages.

4.3.2 Intra-natal / delivery care

Intra-natal / delivery care is another most important component of maternal healthcare. If not given proper care, the life of mother and the new born can be at the risk during this phase of maternal care. So the delivery care is very crucial for the better health of mother and the child.

Place of delivery –

An important thrust of the RCH programme is to encourage deliveries under proper hygienic condition under the supervision of trained health professionals (NFHS.2). **Table 4.6** gives the information about the differential in various components of delivery care by different caste/tribe categories in India.

In India on an average 65.8 percent women have delivery at home. The delivery at home among the ST women is much higher (83 per cent) than the national average. This shows the seriousness of the issue making the women more vulnerable to death during delivery. The condition of 'Others' category is also not that good but better than ST women. Among SC and ST women the use of public institution is more for delivery care because the facilities in public institution are cheaper due to the government's intervention in this field. Among 'Others' and OBCs the institutional delivery in private institution is more than public institution probably due to their affordability of services at private institutes. Griffiths and Stephenson (1999) has observed a financial hierarchy in the choice of institution used for delivery, with private hospitals identified as the most costly place for childbirth. Similar pattern is seen in the study region but it is worse than the national average. In the study region about more than two-third (76.6 percent) women have delivery at home and for ST women this figure is much higher (91.3 per cent). Among all the categories of social groups, ST women are worst performing. In the 'study region', the utilization of public institution is more than the private institution .The ST women are having 1.2 times more the delivery at home than non- ST women. (Table 4.6 'A')

TABLE 4.6
Percentage of Women Using Delivery Care in Different States by Cast/Tribe categories, NFHS-2 (1998-99)

TABLE 4.6 (A)

Delivery Care Indicators	INDIA						STUDY REGION					
	ST	non ST	non ST			All	ST	non ST	non ST			All
			Other	OBC	SC				Other	OBC	SC	
Place of delivery												
Home	82.9	64.0	59.8	63.4	73.0	65.8	91.3	74.3	62.6	81.0	79.3	76.6
Public institution	10.7	16.9	18.0	16.2	16.0	16.3	7.1	15.9	23.7	9.6	15.4	14.7
Private institution	6.3	18.8	22.0	20.1	10.7	17.6	1.4	9.5	13.4	9.0	5.2	8.4
Others	0.1	0.3	0.2	0.3	0.3	0.2	0.1	0.3	0.3	0.4	0.1	0.3
Received Institutional Delivery												
Yes	17.0	35.7	40.0	36.3	26.7	33.9	8.6	25.4	37.1	18.6	20.6	23.1
No	83.0	64.3	60.0	63.7	73.3	66.1	91.4	74.6	62.9	81.4	79.4	76.9
Safe delivery												
Yes	23.1	44.7	48.7	45.0	36.8	42.7	14.3	34.1	44.3	28.8	28.9	31.4
No	76.9	55.3	51.3	55.0	63.2	57.3	85.7	65.9	55.7	71.2	71.1	68.6
Total women (unweighted)	**4184**	**24802**	**11295**	**8215**	**5292**	**28986**	**1109**	**6542**	**2040**	**2920**	**1582**	**7651**

TABLE 4.6 (B)

Delivery Care Indicators	BIHAR						MADHYA PRADESH					
	ST	non ST	non ST			All	ST	non ST	non ST			All
			Other	OBC	SC				Other	OBC	SC	
Place of delivery												
Home	94.1	84.9	72.7	86.2	91.6	85.5	93.3	75.2	62	77.2	83.5	79.6
Public institution	0.5	4.0	6.5	3.8	2.7	3.8	6.2	15.1	22.5	14.3	9.6	12.9
Private institution	5.4	11.0	20.8	9.9	5.6	10.6	0.3	9.3	15.5	7.7	6.9	7.1
Others	0.0	0.1	0.0	0.1	0.2	0.1	0.2	0.4	0.0	0.8	0.0	0.4
Received Institutional Delivery												
Yes	5.9	15.1	27.3	13.7	8.3	14.4	6.5	24.5	38.2	22.0	16.5	20.0
No	94.1	84.9	72.7	86.3	91.7	85.6	93.5	75.5	61.8	78.0	83.5	80.0
Safe delivery												
Yes	7.0	24.5	35.8	23.5	18.0	23.3	13.6	35.0	49.2	32.5	26.6	29.7
No	93.0	75.5	64.2	76.5	82.0	76.7	86.4	65.0	50.8	67.5	73.4	70.3
Total women (unweighted)	**175**	**2465**	**475**	**1398**	**592**	**2640**	**577**	**1943**	**471**	**1044**	**428**	**2520**

TABLE 4.6 (C)

Delivery Care Indicators	ORISSA						WEST BENGAL					
	ST	non ST	non ST			All	ST	non ST	non ST			All
			Other	OBC	SC				Other	OBC	SC	
Place of delivery												
Home	91.7	72.2	59.7	72.9	84.6	76.6	77.8	57.5	58.9	45.2	56.0	59.0
Public institution	7.0	23.1	33.5	22.2	13.4	19.5	22.2	32.6	30.0	31.0	39.4	31.8
Private institution	1.3	4.2	6.5	4.4	1.6	3.6	0.0	9.4	10.6	21.4	4..6	8.8
Others	0.0	0.4	0.3	0.5	0.3	0.3	0.0	0.5	0.5	2.4	0.0	0.4
Received Institutional Delivery												
Yes	8.3	27.4	40.0	46.6	15.0	23.1	22.2	42.0	40.6	52.4	44.0	40.6
No	91.7	72.6	60.0	73.4	85.0	76.9	77.8	58.0	59.4	47.6	56.0	59.4
Safe delivery												
Yes	15.9	39.2	51.5	38.0	28.0	34.1	25.9	46.5	45.4	61.9	46.9	45.0
No	84.1	60.8	48.5	62.0	72.0	65.9	74.1	53.5	54.6	38.1	53.1	55.0
Total women (unweighted)	**290**	**1071**	**339**	**432**	**300**	**1361**	**67**	**1063**	**755**	**46**	**262**	**1130**

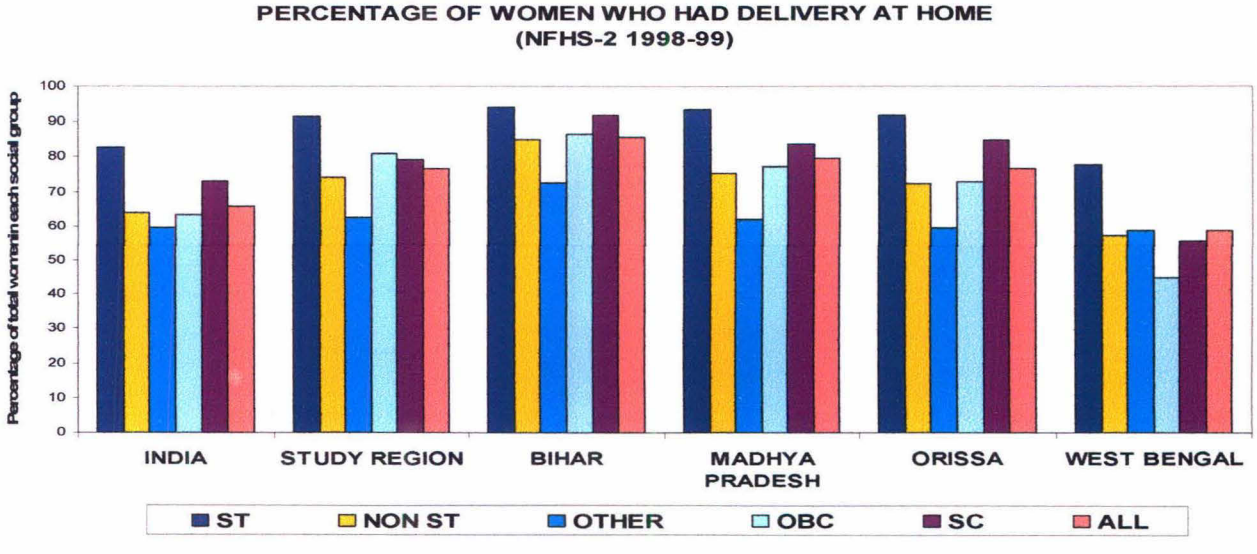
Note: Figures pertain to only those women who had last birth in the last three years prior to the date of survey
Percentages are obtained after applying weights

Source: Computed from unit records of NFHS 2 (1998-99) data file

Among the individual states, the worst condition is of ST women in Bihar where 94.1 per cent have delivery at home. The condition of non-ST women is also more or less equally bad where 85 per cent of them have delivery at home. Surprisingly, in Bihar, the delivery at private institution is more than in the public institution among both the tribal and non-tribal women. This is so perhaps because those (though very few) who have institutional delivery are the people who are educated and aware of the maternal health. To them the facilities are affordable also. So they go for the best services which they think can be obtained in the private institutions. This can also depict the bad quality of care in the

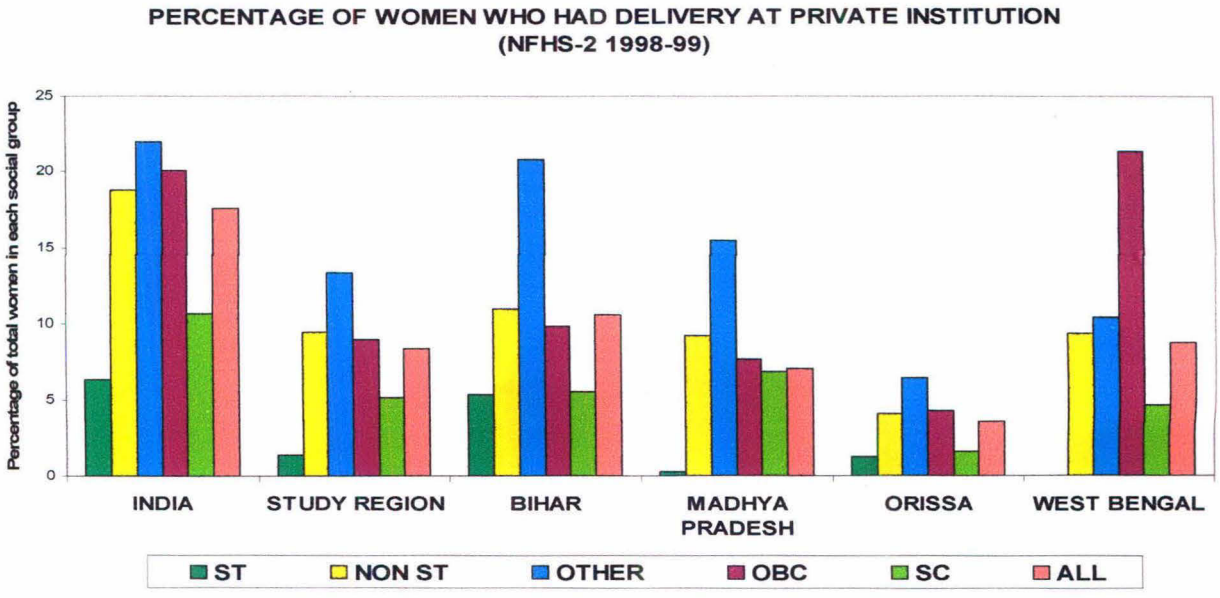
public institution in Bihar which does not attract the women to come forward to avail the facilities from there. On the other hand in all the other three states of the region, the delivery at public institution is more than the private institution. The ST and Non ST differential in terms of receiving institutional delivery is highest in Madhya Pradesh where non- ST women have institutional delivery four times more than the ST women. Again the best performing state in terms of institutional delivery is West Bengal. (Table 4.6 'B' and 'C')

Figure 4.7



Source: Table 4.6

Figure 4.8



Source: Table 4.6

Safe Delivery-

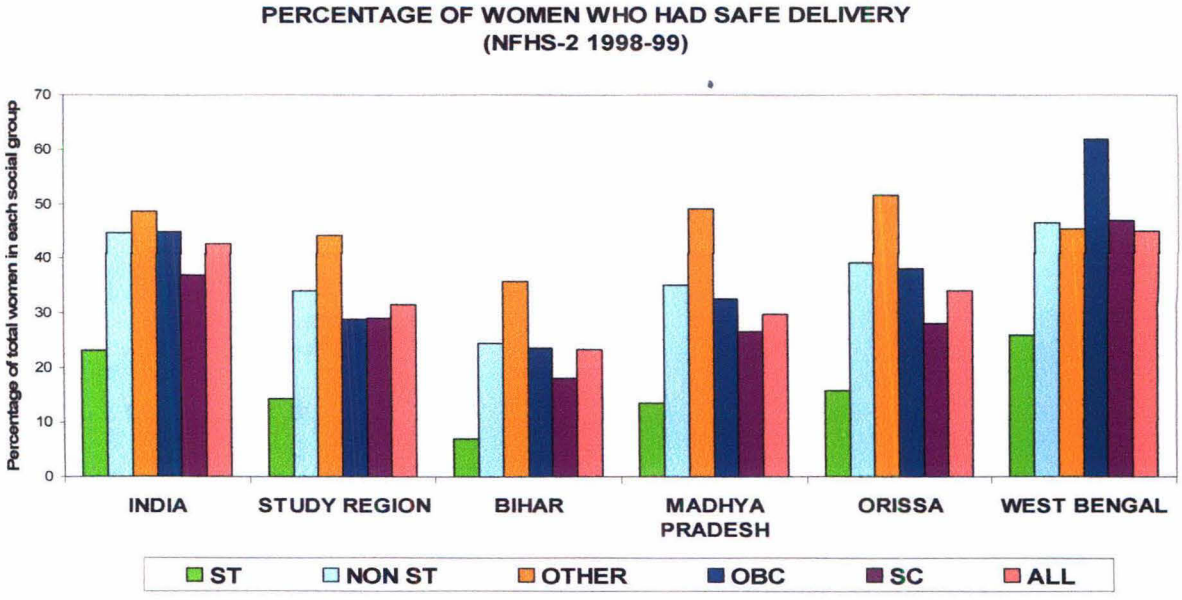
Be the delivery at home or at some institution, if the assistance during delivery is provided by the trained health professional like doctors, ANM, nurse or midwife the delivery is considered to be safe. An important element of MHC services is to encourage institutional deliveries under the supervision of trained health professionals. The majority of maternal deaths and morbidity resulting from childbirth are due to the failure of getting timely help for complications at delivery.

Not even half of women (42.7 per cent) in India have safe delivery. Among ST women not even one-fourth (23.1 per cent) have safe delivery. The situation in the study region shows that only 31.4 per cent of the total women and only 14.3 per cent of ST women have safe delivery. This shows the backwardness of the 'study region' as compared to other states of India. **(Table 4.6 'A')**

Among states, in Bihar, only 7 per cent ST women, 24.5 per cent non- ST women and 23.3 per cent of the total women have safe delivery. Thus non- ST women are more than three times having the safe delivery than the ST women. In Madhya Pradesh, only 6.5 per cent ST

women, Orissa 8 per cent are having the safe delivery which is quite insignificant. The condition of women is better in West Bengal where one-fourth (25.9 per cent) of ST women have safe delivery. **(Table 4.6 'B'and'C')**

Figure 4.9



Source: Table 4.6

4.3.3 Post Natal Care

The health of mother and child is at risk not during her pregnancy and delivery but also during the first four weeks after delivery. Post partum check ups within two months after the delivery are particularly important for births especially those births which are non-institutional. The practice of Post-natal care is very less in India**. (Table 4.7)** Only 31.2 per cent of the total women went to see the doctor within two months after the delivery. The variation in Post-natal care by caste-tribe is not very pronounced as 33.7 per cent of the 'Others', 33.6 percent of the OBC, and 28.3 per cent of SC women had Post-natal care. But this figure for ST women is much lesser (18.8 per cent). In the study region the variation according to caste-tribe is little pronounced than that in India. Here 31.7 per cent of the 'Others' and 22.4 per cent of SC women had Post-natal care. The ST women are again the worst performers but second worst performers are OBCs. Among states the condition of ST

TABLE 4.7

Percentage of Women who saw doctor within two months of delivery in Different States by Caste/Tribe categories, NFHS-2 (1998-99)

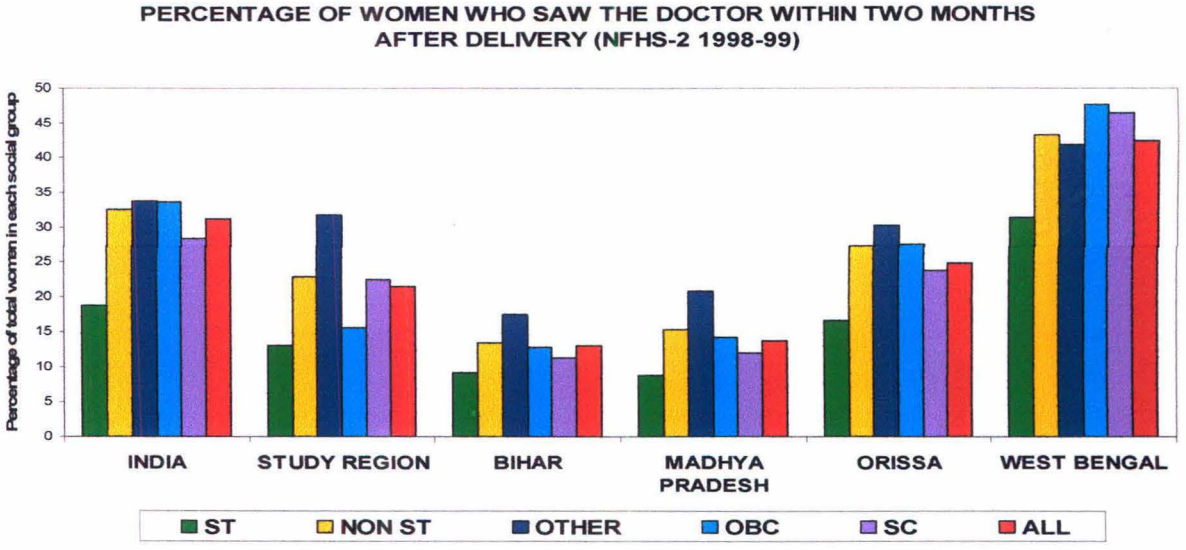
	ST	non ST	non ST			ALL
			OTHERS	OBC	SC	
INDIA						
Saw doctor within 2 months of birth						
Yes	18.8	32.5	33.7	33.6	28.3	31.2
No	81.2	67.5	66.3	66.4	71.7	68.8
Total women	**4184**	**24802**	**11295**	**8215**	**5292**	**28986**
STUDY REGION						
Saw doctor within 2 months of birth						
Yes	13.1	22.8	31.7	15.6	22.4	21.5
No	86.9	77.2	68.3	84.4	77.6	78.5
Total women	**1109**	**6542**	**2040**	**2920**	**1582**	**7651**
BIHAR						
Saw doctor within 2 months of birth						
Yes	9.1	13.4	17.5	12.8	11.3	13.1
No	90.9	86.6	82.5	87.2	88.7	86.9
Total women	**175**	**2465**	**475**	**1398**	**592**	**2640**
MADHYA PRADESH						
Saw doctor within 2 months of birth						
Yes	8.8	15.3	20.9	14.3	12.0	13.7
No	91.2	84.7	79.1	85.7	88.0	86.3
Total women	**577**	**1943**	**471**	**1044**	**428**	**2520**
ORISSA						
Saw doctor within 2 months of birth						
Yes	16.6	27.3	30.2	27.6	23.8	24.9
No	83.4	72.7	69.8	72.4	76.2	75.1
Total women	**290**	**1071**	**339**	**432**	**300**	**1361**
WEST BENGAL						
Saw doctor within 2 months of birth						
Yes	31.3	43.2	41.8	47.6	46.4	42.4
No	68.8	56.8	58.2	52.4	53.6	57.6
Total women	**67**	**1063**	**755**	**46**	**262**	**1130**

Note : Figures pertain to only those women who had their last birth in last three years prior to the date of survey
Percentages are obtained after applying weights
non ST = OBC & SC & 'Others' together

Source: Computed from unit records of NFHS 2 (1998-99) data file

women in terms of Post-natal care is worst in Madhya Pradesh where only 8.8 per cent ST women have Post-natal care. The second worst position is of Bihar followed by Orissa and again West Bengal is at the top.

Figure 4.10



Source: Table 4.7

From the above discussions it is clear that the 'study region' i.e. eastern-mid-Indian tribal belt is lagging behind in terms of utilization of maternal healthcare services as compared to the national average. This is because of the social and the economic backwardness of the region. The caste/tribe variation in the utilization of maternal healthcare shows that on an average ST women's condition is worst in all the types of maternal healthcare utilization, then comes the SC women. The best performers are the 'Others'.

From the discussion it is also clear that antenatal care visits and assistance during the delivery are the two most important indicators for which the caste variation is the maximum. Women seeking maternal healthcare services in Bihar are the least among all the states. The figures for all kind of maternal healthcare services in Bihar depicts that none of the services are widely utilized in this state. So there must be some neglect at the implementation and the institutional level too. Thus in Bihar most of the women and especially ST women are lacking proper healthcare. Despite of government's programmes of promoting safe

motherhood, many women are still unaware and ignorant about the benefits of utilization of maternal healthcare. On the contrary it is noticed that West Bengal is the best performing state compared to the other eastern-mid-Indian states in terms of utilization of maternal health care.

Thus to conclude among all the social groups ST women are the least user of maternal healthcare utilization. Among all states Bihar is the most deprived state in terms of maternal healthcare utilization whereas West Bengal is the well covered state.

4.4 EXTENT OF INEQUALITY AMONG CASTE/TRIBE GROUPS

In this section, an attempt has been made to see the extent of inequality among four caste/tribe categories and also between tribal non-tribal women by using a comparable summary measure of inequality. Statewise values of $\sqrt{\chi^2/N}$ are given in table 4.8 and 4.9 for each of the selected socio-economic and maternal health care utilization indicators respectively to show the association between caste/tribe and given indicator. Higher the value of $\sqrt{\chi^2/N}$ is likely to show strong association which implies higher inequality between the cast/tribe groups regarding given indicators. It implies that the variation in caste/tribe has more effect on the variation of that indicator. If the value is statistically not significant, it implies that caste/tribe does not have any effect on that indicator and the situation with respect to that indicator is more or less the same in different caste/tribe groups. On the basis of the values of $\sqrt{\chi^2/N}$ states have been given ranks. Lower rank shows the higher inequality.

4.4.1 Extent of Inequality between Caste/Groups and Different Socio-economic Indicators

Table 4.8(A) shows that the 'study region' (eastern-Mid-Indian tribal belt) is characterized by relatively less inequality among four groups with respect to type of residence and economic condition (SLI) than the country as a whole. This implies that caste/tribe has lesser effect on the type of residence and economic condition in the study region as compared to

India. On the other hand higher inequality among four groups with respect to religion, education and exposure to media in the study region shows that the caste/tribe has more effect on these factors. This implies that the percentage of women in different religion, the percentage of illiterates, the percentage of women having exposure to media vary considerably between the four caste/tribe categories in the study region than in India. In the study region highest inequality is seen with respect to religion followed by education and household standard of living.

With respect to the type of residence, Madhya Pradesh has the highest inequality among four groups. This is followed by West Bengal. There is more equality regarding type of residence in Bihar. This is probably because Bihar is a less developed state where the respondents with rural residence are not concentrated in any of the four groups. Rather percentage of rural women is equally high (nearly 90 per cent) in all the caste/tribe categories as discussed in table 4.4.

TABLE 4.8 (A)
Extent of Inequality Between Four Caste/Tribe Groups and Different Socio-Economic Variables, NFHS-2 (1998-99)

	Values of $\sqrt{\chi^2/N}$										
State	Residence	rank	Religion	rank	Education of the woman	rank	SLI	rank	Exposure to Media	rank	Average rank of state
India	0.141		0.367		0.226		0.286		0.164		
Study Region	0.136		0.433		0.310		0.268		0.221		
Bihar	0.072	4	0.472	2	0.255	3	0.337	3	0.198	3	3
Madhya Pradesh	0.257	1	0.326	3	0.352	2	0.360	2	0.266	2	2
Orissa	0.109	3	0.220	4	0.451	1	0.412	1	0.380	1	2
West Bengal	0.174	2	0.583	1	0.237	4	0.202	4	0.142	4	3

Note: study region=eastern-mid-Indian tribal belt including four states
SLI= Standard of Living Index
All the values are significant at at least 5 percent significant level
(chi square values are given in Appendix 4)
Source: computed from unit records of NFHS-2 (1998-99) data file

With respect to religion West Bengal has the maximum inequality followed by Bihar. The least inequality is in Orissa. Orissa reveals highest inequality between four groups regarding

education level of the women. This implies that the percentages of women in different educational level are concentrated in any of the four groups. For example the illiterate women are concentrated more in ST/SC groups than in OBC and 'Others' category. This is followed by Madhya Pradesh. The relatively less inequality is seen in west Bengal. Orissa again has the relatively higher inequality with respect to economic conditions indicated by household standard of living index than in other three states. With respect to exposure to media highest inequality in seen in Madhya Pradesh while lowest inequality is in West Bengal.

TABLE 4.8 (B)
Extent of Inequality Between Tribal/Non-Tribal Groups and Different Socio-Economic Variables, NFHS-2 (1998-99)

Values of $\sqrt{\chi^2/N}$											
State	Residence	rank	Religion	rank	Education of the woman	rank	SLI	rank	Exposure to Media	rank	Average rank of state
India	0.096		0.170		0.122		0.134		0.124		
Study Region	0.111		0.240		0.163		0.120		0.133		
Bihar	0.047	4	0.347	2	0.048	4	0.102	4	0.091	4	3.6
Madhya Pradesh	0.219	1	0.208	3	0.227	2	0.208	2	0.209	2	2
Orissa	0.080	3	0.091	4	0.328	1	0.248	1	0.300	1	2
West Bengal	0.124	2	0.384	1	0.158	3	0.106	3	0.135	3	2.4

Note: study region=eastern-mid-Indian tribal belt including four states
SLI= Standard of Living Index
All the values are significant at at least 5 percent significant level
(chi square values are given in Appendix 4)
Source: computed from unit records of NFHS-2 (1998-99) data file

If the four caste/tribe groups are curbed down to only two categories-tribal and non-tribal, the values of $\sqrt{\chi^2/N}$ shows **(Table 4.8 B)** that the extent of inequality between tribal and non-tribal groups in the 'study region' is higher with respect to residence, religion, education and exposure to media than in India. This implies that the tribal, non-tribal membership has much to do with these socio-economic indicators in the 'study region' as compared to the country as a whole. The inter-state analysis for tribal and non tribal groups in terms of inequality shows more or less similar pattern as inequality between four groups with slight difference.

With respect to education, SLI and exposure to any media, the inequality is least in Bihar among all the four states. This is followed by West Bengal. The average ranks of the states show that inequality regarding selected socio-economic indicators is the least in Bihar followed by west Bengal.

4.4.2 Extent of Inequality between Caste/Group and Different Maternal Health Care Utilization Indicators

Table 4.9 (A) shows the extent of inequality among four caste/tribe categories in terms of maternal health care indicators. As regards maternal health care utilization indicators, the study region has relatively higher inequalities among four groups with respect to utilization of any ANC, use of full ANC, institutional delivery, safe delivery and postnatal care. This implies that in the study region, the respondent's caste/tribe has strong influence on whether she receives antenatal care, professional assistance during delivery and postnatal care as compared to India as a whole. This is also true for the inequalities between tribal and non-tribal groups except with respect to postnatal care where it is almost same. **(Table 4.9 B)**

TABLE 4.9 (A)
Extent of Inequality Between Four Caste/Tribe Groups and Different Maternal Health Care utilization Indicators, NFHS-2 (1998-99)

	Values of $\sqrt{\chi^2/N}$										
State	Any ANC visit	rank	Full ANC	rank	Institutional Delivery	rank	Safe delivery	rank	Postnatal care	rank	Average rank of state
India	0.099		0.117		0.154		0.155		0.098		
Study Region	0.231		0.215		0.231		0.208		0.177		
Bihar	0.149	3	0.153	3	0.188	3	0.173	3	0.069	4	3.2
Madhya Pradesh	0.230	1	0.218	1	0.256	2	0.253	2	0.114	2	1.6
Orissa	0.217	2	0.212	2	0.276	1	0.266	1	0.115	1	1.4
West Bengal	0.096	4	***0.061***	4	0.116	4	0.123	4	***0.076***	3	3.8

Note: study region=eastern-mid-Indian tribal belt including four states
All the values are significant at least 5 percent significant level
Values in *italics* are statistically not significant (chi square values are given in Appendix 4)
Source: computed from unit records of NFHS-2 (1998-99) data file

TABLE 4.9 (B)

Extent of Inequality Between Tribal/Non-Tribal Groups and Different Maternal Health Care utilization Indicators, NFHS-2 (1998-99)

	Values of $\sqrt{\chi^2/N}$										
State	Any ANC visit	rank	Full ANC	rank	Institutional Delivery	rank	Safe delivery	rank	Postnatal care	rank	Average rank of state
India	0.062		0.095		0.116		0.128		0.087		
Study Region	0.086		0.100		0.137		0.146		0.081		
Bihar	0.043	3	***0.025***	4	0.066	4	0.106	4	0.032	4	3.8
Madhya Pradesh	0.205	2	0.178	2	0.193	1	0.201	2	0.081	2	1.8
Orissa	0.216	1	0.188	1	0.188	2	0.205	1	0.103	1	1.2
West Bengal	***0.027***	4	0.059	3	0.104	3	0.107	3	0.062	3	3.2

Note: study region=eastern-mid-Indian tribal belt including four states
All the values are significant at least 5 percent significant level
Values in *italics* are statistically not significant (chi square values are given in Appendix 4)
Source: computed from unit records of NFHS-2 (1998-99) data file

In the study region, the highest inequality among four groups is with respect to use of any ANC and institutional delivery, followed by use of full ANC. The inequality between tribal and non-tribal group is highest for safe delivery followed by institutional delivery. The inequality is lowest for postnatal care; which implies that the membership to different caste/tribe does not affect the use of postnatal care in Eastern mid-India tribal belt.

Madhya Pradesh has the highest inequality among four groups with respect to any ANC and full ANC among four groups; followed by Orissa. With respect to delivery and postnatal care, Orissa has the highest inequality among all the four states of Eastern-mid Indian tribal belt. This is followed by Madhya Pradesh. **(Table 4.9B)**

Orissa has the highest inequality in all indicators except in institutional delivery between tribal non-tribal groups. This is followed by Madhya Pradesh. With respect to institutional delivery, Madhya Pradesh has highest inequality followed by Orissa. Bihar and West Bengal have relatively lesser inequality in terms of utilization of maternal care by different

caste/tribe groups. But the level of utilization varies in both the states as seen in the previous discussion. In Bihar, the situation of maternal care use is bad for all the caste/tribe categories; whereas in West Bengal it is better for all the groups.

Thus from the above discussion it is clear that in Bihar and West Bengal, the inequality among different caste/tribe groups is the least with respect to both socio-economic as well as maternal health care utilization indicators. But the explanation can be different for these two states. Bihar is less developed, poor performance state while West Bengal is more developed, better performance state. Equality in West Bengal is a welcome feature because it shows that while improving the overall socio-economic and health care performance, West Bengal has been able to bring even the disadvantaged section to the mainstream and reduce the gap between the caste/tribe groups. On the other hand, equality in Bihar means that performance with respect to all the indicators is poor irrespective of caste/tribe group. It implies that even the more advanced social group has not been able to make much improvement. With the result, there is no gap between the caste/tribe groups. This type of equality can not be called equality, rather stagnation which does not allow signs of rapid change even in the better off groups (Roy et al 2004).

It has also been observed that the states which reveal high inequality between caste/tribe groups with respect to socio-economic conditions are also the states which are characterized by high inequality between caste/tribe groups regarding maternal health care utilization indicators; e.g. in Madhya Pradesh and Orissa. This can also infer that those socio-economic conditions are causing the change in the utilization of maternal health care by cast/tribes. Further examination of this will be done in the next chapter.

CHAPTER 5

FACTORS AFFECTING THE UTILIZATION OF MATERNAL HEALTH CARE SERVICES

CHAPTER 5
FACTORS AFFECTING THE MATERNAL HEALTH CARE UTILIZATION

From the review of literature and the conceptual framework it has been clear that there are various socio-economic and demographic factors which affect the utilization of maternal health care services by the women. From the last chapter it is clear that there is caste/tribe variation in the utilization of maternal health care services. Now in this chapter the net effect of different socio-economic and demographic and regional variables on various maternal health care services according to the caste/tribe are analyzed at the individual level. These pertain to the last pregnancy of the women during the period of three years prior to the survey. The weights provided by NFHS-2 for all India and for states have been employed and normalized. The 'study region' means Eastern-mid –Indian tribal belt comprising four states- Bihar, Madhya Pradesh, Orissa and West Bengal.

5.1 SOCIO-ECONOMIC DIFFERENTIALS IN VARIOUS INDICATORS OF MATERNAL HEALTH CARE

The differential by socio-economic and demographic factors in various indicators of maternal health care (percentage of women who received full ANC, safe delivery and postnatal care) are analyzed one after the other according to caste/ tribe in various study states.

5.1.1 Socio-economic differential in receiving full ANC care

In this section the state wise distribution of women having full ANC services in each caste/tribe category by different socio-economic and demographic background characteristics has been discussed. The **table (5.1)** shows that in the Eastern-mid-Indian-tribal region is inferior in the use of full ANC in all the caste/tribe categories as compared to the rest of the states of the country. In the 'study region' only 15 per cent ST women have received full ANC. This is just half of percentage of tribal women receiving full ANC in rest of the states

TABLE 5.1
Percentage of women having full ANC by different Caste/tribe groups, NFHS-2 (1998-99)

Region/state	Other	OBC	SC	ST	All	Total no. of women (unweighted)
Bihar	21.5	10.3	6.9	8.4	11.4	2640
Madhya Pradesh	35.4	26.2	17.4	9.2	22.1	2520
Orissa	52.5	45.9	38.4	23.4	40.8	1361
West Bengal	47.6	49.5	48.7	36.9	47.2	1130
Study region	40.1	19.8	24.1	15.0	26.0	7651
Rest of the states	42.0	50.5	36.7	30.1	42.7	21335
India	41.5	39.9	32.5	23.3	37.5	28986

Note : Table includes only last birth of women during the three years preceding the survey
Percentages are obtained after applying weights
Source : Computed from unit records of NFHS 2 (1998-99) data file

in India (30 per cent). In all the individual states of the 'study region' the caste/ tribe wise differential in receiving full ANC is quite prominent. Uniformly the ST women are having the least use of full ANC as compared to the other non-ST social groups. The women in 'Other' category have the highest percentage of women using full ANC services in all the states. The ST women are the best served with full ANC in West Bengal, followed by Orissa, Madhya Pradesh and Bihar. The gap between ST and 'Others' is maximum in Madhya Pradesh followed by Bihar. This gap is minimum in West Bengal. Bihar is having the least use of full ANC by all the caste/tribe categories as compared to other three states.

The differentials in receiving full ANC by other socio-economic and demographic variables have been shown in **table 5.2**. In all the categories the differential in the utilization of full ANC according to the socio-economic and demographic factors is similar. In all the states and in all the social groups full ANC received by the rural women is very low as compared to urban women. In 'study region' rural ST women are the least served with full ANC among rural women in other social groups. The rural SC women in the region are better than rural OBC and rural ST women but the best served are the rural 'Other'. In West Bengal the rural SC are the best served as compared to the rural ST, OBC and rural 'Other'. In other three

states of the region Bihar, Orissa and Madhya Pradesh the best served among the rural population are the 'Other'(high caste) followed by OBC, SC and at the lowest end are the ST. In urban areas also the ST are poorly served in all the states. But in Bihar the condition of the urban ST is better than urban SC and urban OBC. In West Bengal 100 per cent urban ST are having full ANC. This depicts that the ST living in the urban areas are performing well in terms of utilization of full ANC. This also depicts that if provided with the facility and if the facilities are accessible as it is in the urban areas the STs are ready to use the services.

Religion wise differential in the utilization of the full ANC shows that in the study region and in the individual states, the Muslims are the least users of full ANC; except in Madhya Pradesh. The low utilization among Muslims can be because of the lack of literacy among the community, the taboos and customs imposed by religious beliefs, the low status of women which does not give the autonomy to the women to seek the health care for themselves.

In the study region, according to the religion, among 'others' and OBC, the best utilization of full ANC is by Christians. But among SC and ST the best utilization is by the other religious community other than Hindu, Muslim and Christians. These may be Jain, Buddhists etc. Among STs, the condition of Christian STs is better than Hindu STs in Bihar and Orissa. This is probably because in this region Christianity has played an important role in the social upliftment of tribals in terms of education and in providing health facilities by opening 'mission' school/colleges and hospitals.

The education of the woman plays an important role in the better coverage of maternal health care services. In all the states and in all the social groups, the utilization of full ANC increases with the increase in the education level of the women. The lowest percentage of women having received full ANC is of illiterate women. In the 'study region' the gap between ST- non ST increases for the women who have completed middle school and above. For illiterate and women having education level less than middle school, the gap between ST and non ST is lesser. This implies that that the illiterate women in all the social groups are more or less on the same position regarding the use of full ANC. But as the education level goes up among non-tribal social groups, the utilization of full ANC by them shoots up faster.

TABLE 5.2
Percentage of women having full ANC by different background Characteristics, NFHS-2 (1998-99)

TABLE 5.2 (A)

Background Characteristics	INDIA					STUDY REGION					BIHAR				
	Other	OBC	SC	ST	ALL	Other	OBC	SC	ST	ALL	Other	OBC	SC	ST	ALL
Place of residence															
Rural	32.9	33.6	27.8	20.1	30.7	33.0	16.5	20.9	14.1	21.6	16.8	8.9	4.5	6.7	9.1
Urban	63.2	63.8	53.8	52.9	61.4	67.9	39.3	45.4	34.0	51.9	55.2	25.6	37.0	50.0	35.9
Religion															
Hindu	43.1	39.4	30.8	22.4	36.8	48.7	20.4	24.0	14.0	26.5	30.9	10.5	6.6	6.5	11.8
Muslim	33.9	38.3	15.8	27.5	34.3	25.2	16.3	12.1	0.0	22.2	8.8	9.4	4.3	0.0	8.8
Christian	81.9	89.1	68.0	24.9	61.3	54.5	100.0	40.0	12.2	24.1	0.0	0.0	50.0	1.3	17.6
Others	62.4	44.8	51.8	43.2	54.8	42.9	0.0	83.3	48.6	47.9	50.0	0.0	100.0	25.0	33.3
Highest education level of the women															
Illiterate	21.3	23.5	22.3	16.1	21.6	20.5	11.5	17.6	11.7	14.8	7.7	5.8	4.5	5.1	5.7
Lit,<mid complete	44.6	53.0	47.9	41.6	47.6	42.8	31.2	37.2	33.0	37.7	20.3	21.2	12.1	15	19.5
Mid complete &above	69.2	73.3	67.9	54.4	69.7	69.8	49.3	56.8	38.9	60.1	49.6	32.9	31.7	31.3	39.2
Household standard of living index															
Low	24.2	26.7	27.1	17.5	24.9	26.5	10.1	19.0	12.9	16.8	6.1	4.1	3.4	5.0	4.2
Medium	39.1	41.8	36.0	27.0	38.5	43.0	22.1	32.6	16.5	29.7	20.0	13.1	16.8	16.7	15.2
High	63.9	66.0	56.9	59.5	63.8	61.2	52.7	48.4	50.0	56.8	51.5	44.4	36.8	100.0	47.6
Regular Exposure to media															
No	18.2	18.2	17.3	15.5	17.6	21.0	10.8	15.5	12.3	14.4	6.1	5.3	4.5	5.4	5.2
Yes	56.1	58.5	49.6	38.0	54.7	54.7	34.9	39.8	23.2	42.9	43.1	25	18.2	33.3	29.5
Age of women															
20-29	45	43.2	35.6	25.9	40.8	44.1	21.0	26.8	16.6	28.4	23.8	11.5	7.0	11.0	12.6
15-19	35.9	39.4	31.6	20.3	34.3	34.1	22.7	20.5	12.7	23.7	19.6	15.1	8.7	0.0	13.2
30-49	33.3	28	22.8	17	28.1	31.4	14.3	17.6	11.9	20.0	17.1	4.2	5.7	2.6	7.1
Age of women at first union															
Less than 18	32.6	32.0	29.0	20.8	30.4	31.6	16.6	22.9	13.7	21.5	16.6	9.3	6.3	6.7	9.6
18 and above	62.0	64.1	47.9	34.9	58.8	62.0	34.9	30.8	23.8	44.6	36.8	16.2	11.3	16.7	21.3
Birth order of the last birth															
4&above	21.3	18.0	20.6	13.2	19.2	17.9	10.7	16.4	8.7	13.3	12.7	4.7	3.6	2.7	5.7
3	37.6	35.9	31.0	25.2	34.5	37.4	17.0	24.6	16.2	23.9	26.0	8.9	7.1	14.3	11.7
2	48.5	50.3	38.7	30.7	45.7	45.8	24.4	29.4	20.5	32.0	23.8	14.2	11.5	12.9	15.5
1	55.6	53.9	43.0	29.8	50.7	54.6	30.6	28.5	20.0	37.5	29.2	16.7	8.7	7.5	16.8
Pregnancy wastage															
no wastage	41.4	39.5	31.9	22.9	37.1	40.4	19.4	22.8	14.2	25.5	21.7	10.6	6.7	7.9	11.5
wastage	42.1	42.1	35.5	25.9	39.3	38.0	22.9	31.8	20.1	29.4	19.7	8.2	9.1	9.5	10.7
Pregnancy complications															
No	38.9	41.1	33.3	24.0	37.2	40.5	17.3	25.0	14.0	25.9	21.2	8.8	5.4	3.2	10.0
Yes	43.1	39.3	32.2	23.1	37.7	40.0	21.0	23.6	15.5	26.2	21.6	11.0	7.5	9.1	12.0
Desirability of the last birth															
Wanted then	43.0	41.0	33.0	24.0	38.5	41.6	21.2	24.6	14.8	26.7	21.0	11.2	5.6	7.0	11.5
Mistimed	45.5	46.9	41.0	28.2	43.7	41.9	22.0	28.3	26.3	31.1	25.5	13.6	16.7	20.7	17.0
Unwanted	26.3	23.2	21.9	11.7	23.3	27.3	9.7	17	7.1	16.2	21.2	3.2	6.1	0.0	6.6
Total	**41.5**	**39.9**	**32.5**	**23.3**	**37.5**	**40.0**	**19.8**	**24.1**	**15.0**	**26.0**	**21.4**	**10.3**	**7.0**	**8.5**	**11.4**
Total no. of women (unweighted)	**11295**	**8215**	**5292**	**4184**	**28986**	**2040**	**2920**	**1582**	**1109**	**7651**	**475**	**1398**	**592**	**175**	**2640**

Note : Table includes only last birth of women during the three years preceding the survey
Percentages are obtained after applying weights

Source : Computed from unit records of NFHS 2 (1998-99) data file

Table contd.

TABLE 5.2 (B)

Background Characteristics	MADHYA PRRADESH					ORISSA					WEST BENGAL				
	Other	OBC	SC	ST	ALL	Other	OBC	SC	ST	ALL	Other	OBC	SC	ST	ALL
Place of residence															
Rural	24.6	20.8	12.8	8.1	16.2	51.6	45.5	37.4	22.8	39.7	39.4	37.5	45.9	35.8	40.6
Urban	52.7	43.1	33.7	25.0	43.3	59.6	47.9	50.0	35.3	50.7	82.1	66.7	63.0	100.0	76.6
Religion															
Hindu	33.5	24.7	17.1	9.2	20.7	54.1	45.8	38.5	23.3	41.0	63.0	51.2	48.4	32.3	54.5
Muslim	42.6	42.4	50.0	0.0	42.6	36.4	25.0	0.0	0.0	34.6	30.2	0.0	50.0	0.0	30.2
Christian	0.0	0.0	0.0	5.0	4.5	44.4	100.0	33.3	30.0	38.5	100.0	0.0	0.0	0.0	66.7
Others	47.8	0.0	66.7	0.0	46.4	0.0	0.0	0.0	0.0	0.0	25.0	0.0	100.0	60.0	55.0
Highest education level of the women															
Illiterate	16.1	16.4	12.2	6.2	12.4	32.2	38.4	32.0	22.0	30.4	27.8	30.8	43.7	30.2	32.9
Lit,<mid complete	32.6	30.9	25.0	29.6	30.3	49.2	46.5	48.1	22.7	46.2	48.4	50.0	47.8	57.1	48.7
Mid complte &above	60.1	61.8	58.1	26.9	58.3	73.2	64.2	64.7	53.8	67.9	85.4	66.7	70.0	75.0	81.0
Household standard of living index															
Low	25.4	12.6	12.8	5.0	11.0	38.5	41.0	33.5	22.9	32.9	32.6	23.1	45.5	32.1	36.0
Medium	28.4	26.3	17.2	11.3	21.8	52.0	44.3	53.4	22.0	45.4	56.8	57.9	52.9	44.0	55.3
High	49.0	51.8	51.7	36.4	49.7	77.6	72.7	50.0	100.0	75.4	76.5	70.0	60.0	100.0	74.5
Regular Exposure to media															
No	14.2	14.6	9.9	5.7	10.7	32.4	39.9	35.0	21.9	31.9	29.8	28.6	38.1	35.1	32.4
Yes	43.6	35.9	27.0	16.3	33.4	62.3	53.4	45.0	34.1	53.8	61.6	60.7	57.7	40.0	59.7
Age of women															
20-29	37.3	25.9	19.9	11	23.2	56.7	46.0	44.9	25.4	44.0	52.3	56.7	49.0	33.3	50.2
15-19	27.6	28.9	10.9	8.1	20.5	55.0	50.0	21.6	16.7	31.4	39.6	0.0	45.2	45.5	41.0
30-49	34.3	24.2	15.6	4.2	19.8	40.7	43.4	27.7	22.4	34.8	37.5	33.3	51.7	42.9	39.9
Age of women at first union															
Less than 18	27.1	23.0	15.2	9.0	18.5	40.1	43.6	40.3	23.1	36.5	38.7	21.7	50.0	32.4	40.7
18 and above	56.6	44.2	32.2	10.2	41.2	65.8	49.7	32.4	26.5	50.1	73.0	84.2	42.9	60.0	67.0
Birth order of the last birth															
4&above	21.4	17.0	15.9	5.5	13.9	29.9	36.7	28.9	19.6	28.8	18.6	0.0	57.8	25.0	26.5
3	30.5	24.9	13.9	9.3	20.4	44.6	38.7	48.3	26.1	39.0	43.6	18.2	43.4	26.3	40.4
2	39.1	27.6	20.5	14.5	25.9	56.0	44.4	40.5	18.3	41.3	55.2	69.2	48.3	50.0	53.5
1	8.7	38.2	20.2	11.0	32.5	68.8	60.2	39.8	31.4	52.6	61.1	76.9	47.2	43.5	57.3
Pregnancy wastage															
no wastage	36.4	25.1	15.8	8.6	21.3	55.2	44.9	35.9	21.7	40.2	47.7	44.7	48.7	35.1	46.9
wastage	29.4	32.6	28.8	11.8	26.6	41.1	49.3	49.2	32.1	43.6	47	100	49	50	48.9
Pregnancy complications															
No	24.8	19.6	17.9	8.6	17.5	56.9	45.1	33.3	17.9	39.1	49.2	44.4	49.1	37.5	48.2
Yes	40.0	28.5	17.4	9.3	23.8	50.7	45.9	40.4	26.5	41.6	46.9	52.0	48.5	38.6	46.8
Desirability of the last birth															
Wanted then	37.7	26.4	18.4	8.5	22.2	53.4	48.7	38.7	24.9	41.9	50.9	58.1	49.8	37.5	49.8
Mistimed	33.3	30.2	18.9	20	27.6	51.4	35.8	34.1	10.0	35.7	46.7	42.9	42.9	54.5	46.2
Unwanted	25.8	20.7	11.9	9.2	17.5	47.6	25.0.	46.2	11.1	34.3	28.2	0.0	50.0	0.0	29.5
Total	**35.4**	**26.2**	**17.4**	**9.1**	**22.1**	**52.6**	**45.8**	**38.4**	**23.5**	**40.8**	**47.7**	**50.0**	**48.7**	**36.6**	**47.2**
Total no. of women (unweighted)	**471**	**1144**	**428**	**577**	**2520**	**334**	**432**	**300**	**290**	**1361**	**755**	**46**	**262**	**67**	**1130**

Note : Table includes only last birth of women during the three years preceding the survey
Percentages are obtained after applying weights

Source : Computed from unit records of NFHS 2 (1998-99) data file

On the other hand the highly educated ST women still lag behind comparatively in terms of using full ANC. The education level increases the percentage of women having full ANC, though in West Bengal the coverage is quite good even among illiterate women, as compared to that in Bihar, Madhya Pradesh and Orissa. In West Bengal, the literate STs are in better position than literate SC and OBC.

In all the states, the use of full ANC increases with household standard of living. The lowest coverage is seen for women having low standard of living and highest for those having the high standard of living. But here also again the state effect seems to be much greater. Women having low standard of living in West Bengal and Orissa are much better served than the women having low standard of living in Bihar and Madhya Pradesh. The caste/tribe variable shows that, the non-ST women having the low standard of living are better users of full ANC than the ST women of low standard of living. But interestingly, the ST women of high standard of living are better served with full ANC than the non- ST women of high standard of living. This depicts that if the tribal women are uplifted to high standard of living, their performance in utilization of maternal health care services increases. That means if we increase the affordability of ST they are ready to use the health care services and they are the better performers. So this also depicts that they are not against the utilization of modern methods of health care. The only need is that they should be provided the conditions to use the maternal health care facilities.

Regular exposure to any of the means of media increases the utilization of full ANC among women. In the 'study region' the women having exposure to media are using full ANC almost twice in all the social groups considered. This figure is more than five times in Bihar which depicts that exposure to media increases the use of full ANC five times more. The regional variation again shows that the level of the use of full ANC among women in all social groups is higher in West Bengal than in Bihar and Madhya Pradesh and Orissa.

Age of the women also has some impact on the use of full ANC. There is the mixed effect of the age on the utilization of full ANC according to the caste and region. When considered the four states together, except OBC, the woman in the age group of 20-29 are better seeker of

full ANC, then comes the 15-19 age group women then comes the 30-49 age group. On an average the younger women are using the full ANC better than the older women as the younger women are open to the new ideas. But the teenager mothers are not performing that good as compared to women in the age group 20-29 probably because they are too young to have a say in the household and to take decisions for their health care.

The women who have their first union (generally in India the first union is legitimized after marriage) at 18 years and above are better users of full ANC in all social groups. The level varies from one social group to another. The level of utilization is less for ST women. State wise analysis also shows that though uniformly the women having their first union at the age of 18 and above are better served but the level varies from one state to another. The better served state being West Bengal, and the worst served being Bihar.

As far as the birth order is considered with the varying level caste wise and region wise the lower birth order having higher utilization of full ANC. ST women being at the lower end and the women belonging to' Other' category being at the higher end.

Pregnancy wastage and complications during pregnancy also has some effect on the utilization of maternal health care utilization. Those women having the pregnancy wastages earlier in their reproductive history tend to use more the health care services.

The desirability of the birth also has impact on the utilization of maternal health care; utilization. If the birth is unwanted the tendency to utilize the maternal health care services is lesser.

5.1.2 Socio- economic differential in receiving safe delivery

The use of maternal services, such as institutional delivery and professionally assisted delivery at home, improves the health of mother as well as the child. This section provides the distribution of women who had safe delivery according to background characteristics in different social groups.

The figures in **table 5.3** show the regional variation in having safe delivery by the women of different social groups. In all the states the ST women are showing the worst performance in using safe delivery. The second position from bottom is SC women, then OBC and at the highest position are women belonging to 'Other' category.

TABLE 5.3
Percentage of women having Safe Delivery by Different Caste/tribe Groups, NFHS- 1998-99

Region/State	OTHERS	OBC	SC	ST	ALL	Total no. of women (unweighted)
Bihar	35.9	23.5	18.0	7.0	23.3	2640
Madhya Pradesh	49.2	32.5	26.7	13.6	29.8	2520
Orissa	51.7	38.0	27.9	16.0	34.1	1361
West Bengal	45.4	62.7	46.8	26.6	45.0	1130
Study region	44.4	28.8	28.9	14.3	31.4	7651
Rest states	50.0	53.6	40.7	30.2	47.8	21335
India	48.7	45.0	36.8	23.1	42.7	28986

Note : Table includes only last birth of women during the three years preceding the survey
Percentages are obtained after applying weights
Source : Computed from unit records of NFHS 2 (1998-99) data file

Overall, the pattern of differential in utilization of safe delivery is quite similar to that for utilization of full ANC. **(Table 5.4)** There is marked differences in seeking safe delivery by residence. As expected, urban women in all states and in all the social groups are seeking more of safe deliveries than rural women. The region wise differential shows that in West

TABLE 5.4
Percentage of women having full safe Delivery by different background Characteristics

TABLE 5.4 (A) NFHS-2 (1998-99)

Background Characteristics	INDIA					STUDY REGION					BIHAR				
	Other	OBC	SC	ST	All	Other	OBC	SC	ST	All	Other	OBC	SC	ST	All
Place of residence															
Rural	37.0	37.1	30.9	18.4	33.7	35.1	23.1	25.7	12.9	25.4	31.2	20.7	16.9	6.7	20.6
Urban	77.9	75.2	63.4	66.4	74.3	80.7	61.7	49.5	42.9	66.3	70.2	52.9	31.8	14.0	52.0
Religion															
Hindu	51.2	44.2	35.1	21.8	42.0	57.5	29.3	28.9	13.2	32.9	51.6	24.7	17.8	5.8	25.0
Muslim	38.4	45.7	20.0	36.6	39.5	21.5	25.8	13.3	0.0	22.4	14.8	17.8	12.5	0.0	16.1
Christian	87.0	95.4	62.7	32.4	64.7	50.0	0.0	33.3	22.0	27.6	0.0	0.0	100	20.0	29.4
Others	75.8	46.9	62.2	28.2	62.8	64.3	0.0	83.3	37.1	50.7	0.0	0.0	100	8.3	13.3
Highest education level of the women															
Illiterate	26.2	28.6	25.9	15.6	25.6	24.6	20.2	21.2	9.9	19.5	15.2	18.1	14.4	1.9	15.5
Lit,<mid complete	52.2	57.8	52.5	38.5	53.1	43.5	37.5	45.2	29.9	41.0	50.7	32.8	32.4	23.0	37.4
Mid complte&above	79.1	78.7	75.2	60.3	77.7	78.3	62.0	65.6	59.3	70.6	68.6	52.5	52.5	41.0	58.2
Household standard of living index															
Low	23.4	30.7	28.1	14.2	25.7	24.5	19.1	21.1	10.3	19.5	10.6	16.5	13.4	3.6	13.7
Medium	46.8	46.4	42.7	30.3	44.6	47.4	30.0	41.2	18.4	35.9	38.5	25.9	31.3	17.0	28.8
High	77.8	75.8	72.4	64.8	76.5	78.0	66.1	62.9	54.2	71.8	75.2	67.4	52.6	0.0	69.6
Regular Exposure to media															
No	23.3	24.5	22.1	14.8	22.3	24.7	18.5	20.2	10.5	18.8	16.2	16.4	14.4	5.4	15.0
Yes	64.5	62.5	53.2	38.8	60.3	59.4	45.9	44.5	25.6	49.5	62.7	44.2	34.3	20.0	47.4
Age of women															
20-29	51.5	47.6	39.6	25	45.5	47.7	29.6	30.6	14.9	33.1	41.1	24.2	20.3	7.9	25.1
15-19	43.3	46.6	37.9	21.6	40.8	40.4	33.4	34.9	14.6	32.7	31.4	29.6	16.7	10.0	25.3
30-49	42.4	34.4	26.5	17.9	34.5	36.6	23.1	18.3	12.4	25.0	25.2	17.7	12.9	2.6	17.2
Age of women at first union															
Less than 18	38.9	37.2	32.0	19.3	34.8	35.0	25.1	25.7	11.9	25.9	30.4	21.8	17.1	4.3	20.8
18 and above	71.1	68.9	58.0	40.8	66.4	68.4	45.6	46.2	30.8	54.0	53.0	33.5	25.8	22.0	37.2
Birth order of the last birth															
4&above	26.6	23.2	23.3	12.4	23.2	20.2	18.6	16.5	7.5	16.7	19.7	16.5	11.7	4.1	15.0
3	42.4	38.0	31.2	23.7	36.9	39.9	23.9	20.7	14.6	26.1	47.2	18.4	16.5	7.3	21.6
2	54.9	52.5	38.9	24.6	48.5	45.5	30.4	27.3	13.9	32.8	34.7	25.4	21.9	3.2	25.4
1	66.3	63.5	56.4	37.7	61.4	65.4	45.5	42.6	27.0	51.9	54.5	37.2	28.7	13	37.1
Pregnancy wastage															
no wastage	48.3	45.1	36.0	22.7	42.4	44.7	28.9	27.8	14.0	31.2	35.3	24.0	17.0	7.9	23.3
wastage	50.4	44.7	40.9	25.7	44.5	42.3	28.1	34.6	16.4	32.6	38.5	19.7	24.3	0.0	23.0
Pregnancy complications															
No	46.1	45.5	36.5	23.3	42.0	43.7	27.3	29.4	12.3	30.9	34.8	23.1	13.8	3.2	22.2
Yes	50.1	44.7	36.9	23.0	43.1	44.7	29.4	28.6	15.0	31.6	36.1	23.6	19.5	7.7	23.7
Desirability of the last birth															
Wanted then	49.6	45.6	36.5	23.2	43.1	46.1	29.0	29.2	14.7	31.7	35.4	24.1	17.8	7.7	23.6
Mistimed	54.8	51.5	43.7	27.0	49.3	46.0	32.9	29.8	14.0	35.3	38.0	24.8	19.7	3.6	23.9
Unwanted	34.7	32.3	31.7	17.6	32.0	30.3	23.4	25.6	10.7	24.6	36.5	18.8	17.1	6.7	20.6
Use of other maternal care earlier															
Antenatal visits															
No visit	15.7	14.4	14.2	9.1	14.2	17.4	13.8	13.3	4.9	12.7	15.1	13.9	11.7	3.0	12.7
At least one visits	62.1	61.5	50.8	33.7	57.5	52.1	42.7	39.2	23.5	43.3	57.0	40.1	34.8	17.0	42.0
Full ANC															
No	29.7	24.8	24.3	15.6	25.4	27.6	21.1	21.8	11.8	21.2	24.7	18.8	15.0	4.7	17.8
Yes	75.2	75.4	62.6	47.8	71.5	69.2	59.7	50.8	32.1	60.1	76.7	63.9	56.1	33.0	65.7
Total	**48.7**	**45.0**	**36.8**	**23.1**	**42.7**	**44.3**	**28.8**	**28.9**	**14.3**	**31.4**	**35.8**	**23.5**	**18.0**	**7.0**	**23.3**
Total women (unweughted)	**11295**	**8215**	**5292**	**4184**	**28986**	**2040**	**2920**	**1582**	**1109**	**7651**	**475**	**1398**	**592**	**175**	**2640**

Table contd.

TABLE 5.4 (B)

Background Characteristics	MADHYA PRADESH					ORISSA					WEST BENGAL				
	Other	OBC	SC	ST	All	Other	OBC	SC	ST	All	Other	OBC	SC	ST	All
Place of residence															
Rural	33.7	22.3	21.2	11.6	20.5	47.5	34.6	26.6	14.0	13.9	35.0	54.2	43.0	25.0	36.6
Urban	73.3	64.9	46.2	44.4	62.9	75.0	64.6	44.0	50.0	62.8	88.7	77.8	65.2	100.0	82.5
Religion															
Hindu	46.2	30.5	36.1	13.5	27.7	53.6	38.2	28.6	14.7	34.2	66.7	63.4	46.9	21.2	55.5
Muslim	52.5	55.3	100.0	0.0	54.7	27.3	25.0	0.0	0.0	26.9	21.0	0.0	0.0	0.0	20.8
Christian	100.0	0.0	0.0	15.0	22.7	44.4	0.0	0.0	50.0	34.6	50.0	0.0	0.0	0.0	33.3
Others	82.6	0.0	66.7	0.0	75.0	0.0	0.0	0.0	0.0	0.0	25.0	0.0	100.0	57.1	52.6
Highest education level of the women															
Illiterate	23.6	22.9	19.2	9.2	18.0	29.7	25.9	21.9	12.3	20.7	29.7	33.3	37.7	22.6	31.4
Literate,<midcomplete	44.7	35.8	45.8	31.5	38.7	48.4	41.9	32.7	30.4	42.0	40.7	66.7	52.9	28.6	43.6
Mid complte&above	81.7	69.4	67.7	65.4	74.1	73.0	64.2	61.8	75.0	68.5	83.5	77.8	75.0	75.0	81.4
Household standard of living index															
Low	29.5	20.9	17.9	10.1	17.2	31.2	26.5	24.8	12.1	22.2	28.2	46.2	37.3	18.5	30.3
Medium	36.2	30.2	31.1	13.1	27.3	54.0	43.2	36.5	28.8	43.8	54.4	60.0	59.8	44.0	55.3
High	74.2	62.5	64.3	63.6	67.6	80.3	68.2	75.0	66.7	75.2	84.0	88.9	70.0	0.0	82.2
Regular Exposure to media															
No	22.0	18.5	12.9	8.9	14.5	36.2	27.3	24.9	12.3	23.0	28.8	64.3	40.2	25.0	32.2
Yes	59.6	44.4	44.0	23.6	44.8	59.1	51.3	33.6	36.6	49.8	58.2	63.0	52.7	28.0	55.8
Age of women															
20-29	53.4	32.6	27.8	14.9	31.0	51.8	39.5	28.8	15.7	35.1	48.1	64.5	45.6	25.0	46.4
15-19	34.5	36.6	31.3	13.5	29.4	45.0	37.5	37.8	8.3	28.5	44.3	100.0	61.9	33.3	48.8
30-49	46.5	28.3	19.1	9.2	25.7	52.5	32.5	20.0	22.4	33.2	36.3	55.6	34.5	28.6	36.4
Age of women at first union															
Less than 18	37.8	28.5	24.7	11.2	24.7	38.9	30.8	25.4	12.2	25.8	35.8	47.8	40.9	27.3	36.8
18 and above	77.9	55.1	39.0	35.0	56.7	65.0	49.4	36.6	35.4	51.4	72.9	78.9	69.6	26.7	70.1
Birth order of the last birth															
4&above	28.8	21.1	18.9	6.6	16.9	34.3	28.6	16.9	12.0	22.4	14.7	20.0	29.5	14.3	17.7
3	42.0	30.9	26.8	16.8	28.9	42.2	25.7	15.5	13.0	24.2	35.1	40.0	24.5	22.2	31.3
2	55.3	34.2	20.5	14.5	31.9	51.8	31.3	26.9	11.3	31.2	46.1	69.2	36.7	25.0	43.2
1	67.2	48.3	48.3	26.6	48.1	67.9	62.5	47.7	28.6	54.4	67.8	85.7	79.8	43.5	69.8
Pregnancy wastage															
no wastage	50.1	31.9	25.5	12.3	29	51.9	39.1	29.0	16.1	34.8	46.2	57.9	46.3	27.4	45.2
wastage	44.9	36.5	34.6	22.4	34.7	50.0	32.0	23.7	15.1	30.3	41.4	100.0	50.0	14.3	44.1
Pregnancy complications															
No	40.8	25.6	32.9	11.5	25.7	53.7	35.3	30.1	14.2	33.7	46.0	83.3	44.3	20.9	45.7
Yes	52.8	35.0	25.1	14.4	31.2	50.5	39.2	27.4	16.8	34.3	45.1	45.8	48.2	49.3	44.6
Desirability of the last birth															
Wanted then	51.6	31.7	25.5	12.9	28.9	50.0	38.7	29.7	17.2	34.2	48.7	63.3	47.7	29.2	47.5
Mistimed	54.9	43.8	45.9	23.3	43.9	64.9	37.0	22.2	5.0	35.3	44.2	57.1	37.2	25.0	42.0
Unwanted	32.3	29.9	20.3	14.1	25.2	50.0	28.0	15.4	0.0	28.4	24.7	75.0	61.1	0.0	31.7
Use of other maternal care earlier															
Antenatal visits															
No visit	16.3	13.3	12.4	4.7	10.3	27.1	14.3	13.0	6.5	13.3	20.0	0.0	46.7	11.1	22.9
At least one visits	58.3	43.0	34.8	24.5	41.6	56.0	42.1	30.5	21.0	39.1	48.5	65.0	46.9	27.8	47.3
Full ANC															
No	35.0	23.2	20.9	12.2	21.3	39.2	26.7	20.1	11.7	23.2	24.9	47.6	41.5	20.0	29.2
Yes	74.8	58.7	54.1	27.3	59.3	62.6	51.0	40.7	29.6	49.6	67.8	76.8	51.9	36.7	62.4
Total	**49.2**	**32.5**	**26.6**	**13.6**	**29.7**	**51.5**	**38.0**	**28.0**	**15.9**	**34.1**	**45.4**	**61.9**	**46.9**	**25.9**	**45.0**
Total women (unweighted)	**471**	**1044**	**428**	**577**	**2520**	**339**	**432**	**300**	**290**	**1361**	**755**	**46**	**262**	**67**	**1130**

Note : Table includes only last birth of women during the three years preceding the survey
Percentages are obtained after applying weights

Source : Computed from unit records of NFHS 2 (1998-99) data file

Bengal the percentage of women who had safe delivery is more than that in Orissa, Madhya Pradesh and Bihar. Women living in rural areas of Bihar and Madhya Pradesh lack in safe delivery in comparison to women of other states.

Education also influences the utilization of safe delivery. The number of women seeking safe delivery increases with the levels of education. The standard of living also shows the same effect like education level. As the economic status increases percentage of women having safe deliveries also increases.

Similar pattern of socio- economic and demographic factors influencing the utilization of full ANC is found for the utilization of safe delivery. Younger women, age of women at first union more than 18 years, earlier pregnancy wastage, pregnancy complications wanted child has positive effects on the utilization of safe delivery in all the states and in all the social groups with varying levels.

Various components of maternal health care also influence each other in a sequence as per their occurrence in the stages of maternity. The utilization of ANC has the effect on the safe delivery. For all women in the study region the percentage of women having safe delivery is only 12.7 per cent for those women who did not have any ANC visit, whereas this figure is more than three times i.e. 43.3 per cent for those women who had at least one ANC visit. This figure further increases to five times i.e. 60.1 per cent for those women, who had full ANC. This is so because the women go to the health centers for ANC check ups, they are informed and encouraged about the utilization of safe delivery also and they are made aware about the benefits of having safe delivery. The pattern is similar in all the states and in all the social groups.

5.1.3 Socio-economic differential in post natal care

The women who saw doctor within two months after delivery has been taken as the indicator of postnatal care. The regional pattern is again similar to that of utilization of full ANC and safe delivery with Bihar having the lowest use and West Bengal having the highest use.. **(Table 5.5)**

TABLE 5.5
Percentage of Women who Saw Doctor within Two Months of Delivery by Caste/tribe Groups, NFHS-2 (1998-99)

Region/State	OTHERS	OBC	SC	ST	ALL	Total no. of women (unweighted)
Bihar	17.4	12.8	11.3	9.5	13.1	2640
Madhya Pradesh	20.9	14.3	11.8	8.8	13.7	2520
Orissa	30.2	27.4	23.7	16.5	24.8	1361
West Bengal	41.8	47.8	46.3	31.3	42.4	1130
Study region	31.7	15.6	22.4	13.1	21.5	7651
Rest states	34.3	43.1	31.3	23.3	35.6	21335
India	33.7	33.6	28.3	18.8	31.2	28986

Note : Table includes only last birth of women during the three years preceding the survey
Percentages are obtained after applying weights
Source : Computed from unit records of NFHS 2 (1998-99) data file

The variables affecting the post natal care is similar to that of full ANC and safe delivery. The pattern of differential is also similar state wise, caste/tribe wise in all the states considered. In the 'study region' the percentage of women having postnatal care (saw doctor within two months of delivery) is 13.8 per cent for all women who did not have safe delivery, but this figure rises up to 38.1 per cent (nearly thrice) for those who had safe delivery. Similarly the women having full ANC are also three times more using postnatal care. Thus there is positive relationship between full ANC and safe delivery and post natal care.

TABLE 5.6

Percentage of women Saw Doctor within two months of delivery, NFHS-2 (1998-99)

Table 5.6 (A)

Background Characteristics	INDIA					STUDY REGION					BIHAR				
	Other	OBC	SC	ST	All	Other	OBC	SC	ST	All	Other	OBC	SC	ST	All
Place of residence															
Rural	28.7	29.1	25.8	17.6	27.0	28.0	14.1	21.7	12.9	19.4	15.4	12.6	11.3	8.9	12.5
Urban	46.3	50.9	39.8	29.3	45.9	46.3	23.4	26.5	18.4	33.5	32.8	15.1	13.3	14.3	19.2
Religion															
Hindu	33.5	32.9	27.4	18.3	30.3	33.9	16	22.4	12.1	21.0	21.9	13.4	11.3	9.1	13.6
Muslim	29.6	33.7	11.7	2.5	29.8	27.7	12.9	10.0	0.0	22.9	11.7	10.3	4.3	0.0	10.5
Christian	78.2	84.3	49.7	20.8	53.6	45.5	100.0	66.7	9.8	23.7	0.0	0.0	50.0	6.7	1.8
Others	54.6	35.4	40.2	32.6	45.3	37.0	0.0	40.0	47.2	41.4	0.0	0.0	100.0	16.7	20.0
Highest education level of the women															
Illiterate	19.6	20.9	20.8	14.5	19.7	20.8	12.1	18.0	11.1	15.2	10.7	10.8	9.2	7.6	10.2
Lit,<mid complete	37.2	44.0	40.1	28.8	39.3	34.2	21.5	34.3	21.9	29.5	16.2	20.4	15.2	15.4	18.3
Mid complte&above	52.1	59.5	53.7	38.0	54.0	47.4	26.6	39.6	24.1	38.7	31.6	20.6	35	18.8	26.4
Household standard of living index															
Low	23.0	25.0	23.7	15.5	22.8	27.8	12.3	17.8	11.7	17.3	10.6	10.1	7.6	7.2	9.1
Medium	31.5	34.8	32.2	20.5	31.9	30.0	16.1	31.4	14.2	22.7	13.0	14.3	23.9	17.0	15.3
High	48.8	50.9	42.7	41.6	48.7	43.9	28.1	32.3	33.3	37.0	38.6	26.7	26.3	0.0	32.4
Regular Exposure to media															
No	17.7	16.9	17.3	13.9	16.8	22.3	11.8	15.6	12.1	15.0	10.5	10.2	8.6	9.1	9.8
Yes	43.7	48.0	40.7	27.9	43.6	38.9	22.0	34.4	16.1	30.7	26.7	20.6	23.1	9.5	22.4
Age of women															
20-29	35.9	36.3	30.2	19.2	33.4	34.4	16.2	24.5	11.6	22.7	21.9	13.5	11.0	7.9	14.1
15-19	29.9	30.5	28.7	20.1	28.7	23.9	16.8	20.8	18.9	19.8	3.9	14.5	12.2	20	12.6
30-49	28.9	26.0	21.5	16.3	25.4	28.5	12.9	16.7	13.4	18.6	12.6	9.7	10.9	7.7	10.4
Age of women at first union															
Less than 18	27.3	26.9	25.2	17.2	25.7	27.4	13.9	21.0	12.9	18.9	13.2	12.9	10.7	9.9	12.2
18 and above	48.5	54.3	42	25.7	47.9	43.1	23.5	29.7	14.7	32.0	30.7	12.4	16.4	4.2	17.8
Birth order of the last birth															
4&above	19.0	16.8	17.9	14.1	17.5	21.3	12.1	15	11.2	14.7	12.8	10.7	8.5	6.8	10.2
3	29.9	28.0	28.5	16.8	27.7	24.7	13.8	23.2	10.7	18.2	16.4	12.5	16.7	14.6	14.2
2	37.8	42.1	32.2	21.4	36.8	31.8	16.2	25.3	13.9	23	19.7	14.0	10.9	9.7	14.3
1	45.4	45.5	38.0	24.9	42.5	43.9	21.4	28.6	18.6	30.5	23.0	15.8	13.1	7.5	16.0
Pregnancy wastage															
no wastage	33.9	33.4	27.7	18.5	31.0	32.0	15.6	21.5	12.9	21.2	17.8	13.2	11.4	9.1	13.3
wastage	33.0	35.1	31.7	20.3	32.3	30.3	16.1	27.1	14.3	22.9	15.4	10.5	10.8	9.5	11.4
Pregnancy complications															
No	29.8	35.3	27.7	17.0	30.1	28.1	13.8	21.6	9.9	19.4	9.9	10.5	4.8	9.7	9.1
Yes	35.9	32.6	28.6	19.6	31.8	33.4	16.3	22.7	14.3	22.3	20.4	13.8	13.8	9.0	14.6
Desirability of the last birth															
Wanted then	34.5	33.8	27.7	18.5	31.3	32.1	15.3	21.7	12.9	21.1	16.5	12.3	10.6	7.7	12.4
Mistimed	38	41.4	35.9	23.1	37.4	33.8	19.6	27.8	14	26.1	21.6	18.3	16.4	10.7	17.7
Unwanted	22.9	23.6	25.5	16.6	23.2	26.5	13.8	20.9	14.3	19.1	19.2	11.8	11.0	20.0	13.1
Use of other maternal care earlier															
Antenatal visits															
No visit	9.1	8.5	8.3	6.4	8.4	11.6	7.9	8.8	5.3	8.3	10.6	8.9	7.4	5.2	8.5
At least one visits	43.8	47.2	40.7	28.1	43.0	37.5	22.5	31.3	21.0	29.9	24.7	19.8	22.0	20.8	21.4
Full ANC															
No	17.8	15.1	16.7	12.4	16.1	21.0	11.2	16.0	9.5	14.3	12.2	10.7	8.9	7.6	10.3
Yes	56.2	61.4	52.3	39.5	56.3	47.8	33.5	41.9	33.8	41.6	36.9	31.7	42.9	26.7	34.8
Received Institutional Delivery															
No	18.2	16.0	17.8	14.1	16.9	22.3	11.4	17.3	10.4	15.2	12.6	10.0	9.6	8.6	10.2
Yes	57.1	64.6	57.3	41.1	59.0	47.8	3.8	41.9	42.7	42.4	30.5	30.9	30.6	18.2	30.4
Safe delivery															
No	16.1	13.9	15.2	13.6	14.9	20	10.3	15.9	10.2	13.8	10.1	9.6	8.2	8.7	9.3
Yes	52.3	57.7	50.8	35.8	53.1	46.5	28.8	32.2	30.4	38.1	308	23.2	25.2	15.4	25.5
Total	**33.7**	**33.6**	**28.3**	**18.8**	**31.2**	**31.7**	**15.6**	**22.4**	**13.1**	**21.5**	**17.5**	**12.8**	**11.3**	**9.1**	**13.1**
Total women (unweighted)	**11295**	**8215**	**5292**	**4184**	**28986**	**2040**	**2920**	**1582**	**1109**	**7651**	**475**	**1398**	**592**	**175**	**2640**

Table Contd.

TABLE 5.6 (B)

Background Characteristics	MADHYA PRADESH					ORISSA					WEST BENGAL				
	Other	OBC	SC	ST	All	Other	OBC	SC	ST	All	Other	OBC	SC	ST	All
Place of residence															
Rural	13..0	10.9	9.5	8.5	10.2	28.9	27.3	24.6	15.4	24.2	37.7	41.7	46.5	31.6	39.5
Urban	33.5	25.4	19.6	13.9	26.1	37.5	29.8	12.0	35.3	29.9	58.9	55.6	45.7	0.0	55.3
Religion															
Hindu	18.2	13.6	11.8	9.1	12.8	30.7	27.4	22.7	16.1	24.5	48.1	48.8	46.5	25.8	45.6
Muslim	26.2	22.6	0.0	0.0	23.8	18.2	25.0	0.0	0.0	19.2	34.6	0.0	50.0	0.0	34.6
Christian	100.0	0.0	0.0	5.0	13.6	33.3	100.0	66.7	30.0	42.3	50.0	0.0	0.0	0.0	33.3
Others	39.1	0.0	33.3	0.0	35.7	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	64.3	57.9
Highest education level of the women															
Illiterate	8.9	10.5	9.8	9.0	9.7	15.6	26.5	22.4	14.6	20.1	30.6	38.5	42.5	24.2	33.6
Lit,<mid complete	22.3	17.6	18.3	7.4	17.5	25.0	25.6	25.9	21.7	25.2	42.1	50.0	50.0	53.3	44.5
Mid complte &above	34.0	26.3	22.6	7.7	27.9	48.2	33.8	27.3	50.0	40.4	62.8	50.0	55.0	60.0	60.4
Household standard of living index															
Low	16.1	11.3	8	8.3	9.9	20.2	23.6	24.3	15.8	21	36.2	38.5	40.4	23.6	36.2
Medium	15.7	14.2	14.7	8.6	13.2	29.5	27.6	21.9	16.9	26	42.9	42.1	55.4	48	45.9
High	29.9	20.8	24.1	22.7	24.9	48.5	45.5	25	66.7	47	61	70	50	100	61.2
Regular Exposure to media															
No	15.1	9.3	7.8	7.7	9.0	19.0	24.9	22.8	15.4	20.5	30.9	50.0	37.0	30.4	32.9
Yes	22.9	18.5	16.8	11.3	18.2	35.5	31.1	25.5	24.4	31.2	50.2	46.4	54.4	36.0	50.5
Age of women															
20-29	22.6	13.7	12.9	7.8	13.7	32.0	29.0	27.3	17.9	27.0	43.6	48.4	47.6	23.2	43.4
15-19	8.8	17.1	6.3	13.5	13.4	30.0	28.1	21.6	12.2	21.0	34.6	100.0	42.9	54.5	38.5
30-49	23.2	13.4	12.2	7.6	13.8	25.0	22.6	14.1	15.8	20.0	41.2	44.4	44.8	42.9	42.0
Age of women at first union															
Less than 18	16.1	12.2	11.4	9.0	11.8	22.8	24.1	24.6	15.7	21.6	37.8	39.1	45.0	30.3	39.1
18 and above	32.8	26.3	15.3	6.8	23.7	37.6	33.1	21.1	20.8	31.4	53.4	57.9	51.8	33.3	52.3
Birth order of the last birth															
4&above	15.3	10.8	12.9	8.4	11.0	16.4	30.6	18.1	16.3	20.9	30.8	20.0	42.2	30.0	32.7
3	15.9	13.3	14.1	7.5	12.5	23.4	21.6	24.6	7.2	18.9	31.8	20.0	35.8	22.2	31.4
2	19.3	11.4	10.1	8.9	12.3	35.7	25.0	25.3	19.7	26.5	39.8	58.3	47.8	25.0	41.8
1	31.1	22.5	10.1	11.1	20.2	38.2	32.7	27.3	22.9	31.2	54.3	64.3	53.9	45.5	54.0
Pregnancy wastage															
No wastage	20.4	14.1	11.2	8.8	13.3	31.1	26.8	21.8	16.1	24.4	42.3	44.7	46.3	31.5	42.5
wastage	23.5	15.2	17.3	9.2	15.9	25.9	32.0	32.2	20.4	28.1	38.8	75.0	46.9	37.5	41.8
Pregnancy complications															
No	16.0	10.7	11.9	4.6	10.3	36.7	23.3	27.4	15.1	25.5	36.4	61.1	41.5	20.8	38.0
Yes	22.8	15.5	11.7	10.5	14.8	27.0	29.7	22.4	17.8	24.8	44.4	37.5	49.1	35.1	44.5
Desirability of the last birth															
Wanted then	22.4	13.6	11.2	7.9	13.1	27.1	29.3	23	17.2	24.5	44.0	48.4	44.9	35.9	43.8
Mistimed	19.6	19.8	10.5	23.3	18.6	47.4	24.1	26.7	5.0	28.0	38.0	28.6	48.8	9.1	38.4
Unwanted	13.1	15.4	16.7	9.4	13.9	38.1	12.0	23.1	22.2	23.5	33.8	75.0	55.6	20.0	38.5
Antenatal visits															
No visit	7.6	5.2	7.1	4.7	5.6	10.6	4.8	14.9	8.4	9.1	16.3	0.0	40.0	0.0	18.1
At least one visits	24.5	19.2	14.8	14	18.7	33.3	31.4	25.4	21.0	28.6	44.9	48.8	46.6	34.7	44.8
Full ANC															
No	15.6	9.9	7.3	7.0	9.4	19.6	15.9	18.0	11.7	15.9	29.3	33.3	45.8	25.5	33.1
Yes	30.5	26.6	33.8	27.3	28.7	39.8	41.3	33.1	32.4	37.9	55.5	61.9	47.4	41.9	52.9
Received Institutional Delivery															
no	12.9	10.8	10.0	7.9	10.1	18.5	22.3	23.4	13.7	19.6	31.3	20.0	40.6	20.3	32.1
Yes	34.0	27.1	21.7	22.5	28.2	47.7	42.1	26.1	50	42.7	56.9	72.7	53.7	72.2	57.4
Safe delivery															
No	11.6	8.9	7.8	7.9	8.7	13.4	19.9	21.3	12.2	16.9	28.6	13.3	38.8	21.7	30.0
Yes	30.5	25.8	23.4	15.7	25.6	46.1	40.1	30.2	41.7	40.6	57.7	69.2	54.6	59.1	57.6
Total	**20.9**	**14.3**	**12.0**	**8.8**	**13.7**	**30.2**	**27.6**	**23.8**	**16.6**	**24.9**	**41.8**	**47.6**	**46.4**	**31.3**	**42.4**
Total women (unweighted)	**471**	**1144**	**428**	**577**	**2520**	**334**	**432**	**300**	**290**	**1361**	**755**	**46**	**262**	**67**	**1130**

Note : Table includes only last birth of women during the three years preceding the survey
Percentages are obtained after applying weights

Source : Computed from unit records of NFHS 2 (1998-99) data file

Thus to conclude, women having urban residence are utilizing more of health services than rural women. The utilization of health care services is the highest for women belonging to other religion followed by Christians and Hindu and it is least for Muslim women. Higher education level of the women has more seeking of all kinds of health care services. Women in 20-29 years of age group and who have consummation of marriage or first union above 18 years are going for health care services. Mothers having 1-2 children are more utilizing the maternal care services in comparison to women with no child or more than 3 children. The women having exposure to media, pregnancy wastage and complications during pregnancy are better users of all kinds of maternal health care services. And also for wanted child mothers do not want to take any risk so they go to seek the health care services. The utilization of earlier use of maternal health care services has the positive impact on the use of subsequent health care service. The women who have already used the antenatal and delivery care also use the postnatal care more compared to those who have not used them.But throughout the region and in individual study states, the utilization among ST women is lesser than that of non-ST women. The ST women are lagging behind in maternal health care utilization.

5.2 LOGISTIC REGRESSION ANALYSIS OF UTILIZATION OF MATERNAL HEALTH CARE SERVICES IN EASTERN-MID-INDIAN TRIBAL BELT: ALL FOUR STATES POOLED

After the discussion of the gross differential by selected socio-economic, demographic and regional factors now it is important to analyze the factors affecting the maternal health care utilization with the help of multiple logistic regression analysis. To examine the net effect of the independent variables on the dependent variable, multivariate logistic regression analysis has been exercised since the dependent variables are dichotomous. The regression results are obtained in the form of two models for each of the dependent variables. The first model shows the effect of only socio-economic and demographic factors on different components of

maternal health care. The four states of the 'study region' are not only different from a geographical but also a development point of view. In order to find out the state-specific differential in the use of maternal care, the second model takes into account the state factor along with other socio-economic and demographic factors. The logistic regression analysis for each of the three dependent variables - use of full ANC, safe delivery and whether woman saw the doctor within two months of delivery (postnatal care) has been discussed one after the other. All India sample weights provided by NFHS-2 have been employed and normalized.

5.2.1 *Logistic result analysis for the use of Full ANC*

The result of logistic regression for the use of full ANC services **(Table 5.7)** displays the net effect of various socio-economic and demographic factors on the utilization of full ANC when the other factors are controlled. The logistic regression result in model-1 shows that, within the 'study region' the caste/tribe factor strongly affects the use of full ANC. As compared to higher castes, the OBCs, SCs and STs are less likely to seek full ANC services.

When the state factor is taken into care, the results in model-2 exhibit that compared to Bihar, women in all the other three states are more likely to use full ANC services. In comparison to Bihar, the odd ratio in Madhya Pradesh is 1.6 times higher, in Orissa more than five times and in West Bengal more than six times higher. This shows that the state factor is quite strong in the use of full ANC. The women of West Bengal are performing the best in terms of using full ANC. The second position is occupied by Orissa. This is probably because as compared to Bihar, Orissa and West Bengal are relatively more developed and well equipped with maternal health care facilities, which encourages the women to use the antenatal care facilities for the improvement of their maternal health.

The caste/tribe factor is not significant to affect the use of full ANC when the state factor is taken into consideration. This implies that within the study region more than caste/tribe factor, different endowment of different states affects more strongly the utilization of full ANC as seen in model-1 in table 5.7. Further Muslim women are less likely to seek full ANC

TABLE 5.7
Logistic Regression Results for Full ANC for Eastern-Mid-Indian Tribal Belt, NFHS-2

Background Characteristics	MODEL 1 Odd Ratio: Exp(B)	MODEL 2 Odd Ratio: Exp(B)
Region		
Bihar (RC)		
Madhya Pradesh		1.665***
Orissa		5.295***
west Bengal		6.181***
Caste/tribe		
Others(RC)		
OBC	0.505***	0.984
SC	0.763**	0.929
ST	0.533***	0.679
Religion		
Hindu(RC)		
Muslim	0.787*	0.711***
Christian	0.675	0.782
Others	2.051	1.901
Regular Exposure to media		
No (RC)		
Yes	1.805***	1.590***
Birth order of the last birth		
4&above(RC)		
3	1.553***	1.369**
2	1.865***	1.512***
1	2.258***	1.788***
Age of women at first union		
Less than 18(RC)		
18 and above	1.256***	1.107
Pregnancy wastage before the last birth		
no wastage(RC)		
wastage	1.448***	1.323**
Household standard of living index		
Low(RC)		
Medium	1.065	1.277**
High	1.305	2.084***
Pregnancy complications		
No (RC)		
Yes	1.142	1.274***
Desirability of the last birth		
Wanted then(RC)		
Mistimed	.979*	0.887
Unwanted	.688**	.716**
Highest education level of the women		
Illiterate(RC)		
Literate,<mid complete	1.987***	1.568***
Mid complte &above	3.026***	3.181***
Age of women		
20-29(RC)		
15-19	0.788	0.884
30-49	1.083	1.043
Place of residence		
Rural(RC)		
Urban	2.082***	2.176***
Constant	0.120***	0.040***
Total women (unweighted)	**7651**	**7651**

***= significance at 1 percent level, ** = significance at 5 percent level, * = significance at 10 percent level
Source: Computed from unit records of NFHS-2 (1998-99) data file

as compared to Hindu women; the odd ratio being 0.711(model-2). The result is significant at 1 percent level of significance. For other socio-economic indicators, the women having the exposure to media are more likely to use full ANC (model-2). Birth order is also an important factor to affect the utilization of full ANC. For the lower birth order the women are more likely to use full ANC. For the first child, women are far more likely to go for full ANC as compared to fourth child and more. This may be because of lack of experience and excitement and uncertainty about the pregnancy and child birth and also the fear attached to the first pregnancy.

Age at first union is not significant when the state factor is taken into account. But when it is dropped; within a region the age at first union affects the use of full ANC. Women having age at first union 18 and above are more likely to use full ANC as compared to those women having age at first union below 18. This may be due to delay in age at marriage (as the union is legitimized after marriage) because of education of the women (as studying women do not want to get married early), awareness of the family, good standard of living of the household the women belongs to.

The standard of living significantly affects the use of full ANC when the state factor is in consideration. But within a region as a whole, this is not significant in model-1. Similarly the complication during pregnancy is not significant in model-1, but is significant in model 2 at 1 percent level of significance.

The desirability of the child (birth) also influences the use of full ANC services. The use of full ANC for the unwanted child is lesser than the child or birth wanted then. The odd ratio being 0.688 at 1 percent significance level in model-1.

Education has a positive effect on utilization of full ANC services. Women with primary and middle and above education level are more likely to seek full ANC services. The odd ratio for the women completing primary education is 1.561 and for the women completing the middle school and above being 3.181 at one per cent significance level (model-2). Thus the

women having the education middle school and above are far more likely to seek full use of ANC as compared to illiterate women.

The age of women though shows the variation in the full use ANC in the bivariate cross tabulation analysis but when the other factors are controlled in the logistic regression analysis, the age of women is not significant to affect the use of full ANC.

The type of residence has the effect on the use full ANC by women. The urban women are more likely to use full ANC as compared to rural women; the odd ratio being 2.176 at one percent significance level in model-2.

5.2.2 *Logistic result analysis for the use of Safe Delivery*

Table 5.8 discusses the regression results for safe delivery. Here four models of logistic regression have been discussed. In the third and fourth model, use of full ANC has also been added in the list of predictor variables.

The result shows that the caste/tribe factor is prominent to affect the use of safe delivery (model-1).The OBCs, SC and ST women are less likely to get safe delivery, but STs are far less likely to get safe delivery in comparison to women belonging to 'Other' category. This shows that the ST women are the most deprived even after controlling other factors. It is also noticed that even if the state factor taken into consideration, among all the social groups the ST women are significantly less likely to seek safe delivery. (Model-2 and 4).

The effect of state factor shows that the women in Orissa and West Bengal are more likely to get safe delivery as compared to Bihar. (model-2)

TABLE 5.8
Logistic Regression Results for Safe Delivery in Eastern-mid-Indian Tribal Belt,NFHS2

Background characteristics	MODEL 1 Odd Ratio: Exp(B)	MODEL 2 Odd Ratio: Exp(B)	MODEL3 Odd Ratio: Exp(B)	MODEL 4 Odd Ratio: Exp(B)
Region				
Bihar (RC)				
Madhya Pradesh		0.965		0.908
Orissa		1.333**		1.045
west Bengal		2.092***		1.618***
Caste/tribe				
Others(RC)				
OBC	0.634***	0.866	0.710***	0.87
SC	0.724***	0.803	0.757**	0.805
ST	0.351***	.428***	0.385***	0.447***
Religion				
Hindu(RC)				
Muslim	0.508***	0.456***	0.522***	0.474***
Christian	0.865	0.949	0.896	0.965
Others	2.1	1.806	1.763	1.581
Regular Exposure to media				
No (RC)				
Yes	1.438***	1.371***	1.306***	1.286***
Birth order of the last birth				
4&above(RC)				
3	1.460***	1.379***	1.387***	1.338***
2	1.647***	1.493***	1.502***	1.411***
1	4.459***	4.031***	4.088***	3.840***
Age of women at first union				
Less than 18(RC)				
18 and above	1.321***	1.287**	1.279**	1.275**
Pregnancy wastage				
no wastage(RC)				
wastage	1.320**	1.277**	1.238	1.223
Household standard of living index				
Low(RC)				
Medium	1.249**	1.347***	1.247**	1.314***
High	2.572***	3.162***	2.505***	2.885***
Pregnancy complications				
No (RC)				
Yes	1.179	1.228**	1.151	1.185
Desirability of the last birth				
Wanted then(RC)				
Mistimed	1.055	0.998	1.074	1.027
Unwanted	1.087	1.089	1.155	1.14
Highest education level of the women				
Illiterate(RC)				
Literate,<mid complete	1.532***	1.389***	1.360***	1.297***
Mid complte &above	2.682***	2.635***	2.223***	2.230***
Age of women				
20-29(RC)				
15-19	0.750**	0.789	0.775*	0.8
30-49	1.22	1.217	1.208	1.211
Place of residence				
Rural(RC)				
Urban	3.427***	3.556***	3.108***	3.244***
Full ANC				
No(RC)				
Yes			2.645***	2.430***
Constant	0.132***	0.096***	0.114***	0.096***
Total women	7651	7651	7651	7651

***= significance at 1% level, ** = significance at 5% level, * = significance at 10% level
Source: Computed from unit records of NFHS-2 (1998-99) data file

As far as religion is concerned, Muslim women are significantly less likely to seek safe delivery than Hindus, the odd ratio being 0.508 and 0.456 in model-1 and model-2 respectively. The effect is insignificant for women belonging to other religions, in all the four models.

The women having the age at first union 18 years and above are significantly more likely to get safe delivery. Pregnancy wastage before the last birth is significantly a cause for more likely to have safe delivery but when full ANC also becomes predictor variable to explain the use of safe delivery, this becomes insignificant.

The standard of living is strong and significant to explain the use of safe delivery. The results also shows that the women belonging to the middle classes are more likely to get safe delivery and the women belonging to high class are far more likely to get safe delivery in all the four models. This is so probably because delivery care is relatively costly than the antenatal and postnatal care even if it takes place at public institution. The caesarean operation and other complications during the delivery do need money to have good medical treatment. The affordability is an important factor in case of safe delivery.

Higher level of education shows an expected positive effect on the utilization of safe delivery by women. Women who have education till primary and middle and above are significantly are more likely to go for safe delivery as compared to illiterate women.

The age of women has significant effect on utilization of services only for women in young age groups (15-19years of age) .This shows that the teenager women are significantly less likely to use safe delivery as compared to women in age group (20-29), The old ratio being 0.75 and 0.77 at 5 per cent significant level and 10 per cent significance level in model-1 and 3 respectively.

The urban women are more likely to get safe delivery as compared to rural women. The odd ratio being more than three in all the four models. This is perhaps because institutional deliveries are more in urban areas due to availability and accessibility of health institutions,

hospitals, specialist doctors and nurses etc.

The use of full ANC also has significant positive effect on use of safe delivery. The women having had full ANC are more likely to get safe delivery, as the result shows in model 3 and 4. This is because of the awareness and knowledge women get about safe delivery and other precautions to be taken during pregnancy, delivery and child birth during the consultation with health workers at the time of ANC visits.

5.2.3 *Logistic result analysis for the use of Postnatal Care*

The results for postnatal care that is, whether the women saw the doctor within two months of delivery are discussed in next **table-5.9.** This is an important component for the maternal care. After delivery both the mother and the infant need proper care and attention because women and infant both are vulnerable after delivery also. Again, four models have been prepared for the analysis of postnatal care.

The result shows that women belonging to OBC and ST category are significantly less likely to have postnatal care compared to high caste women.(model-1 and 3). The women in Orissa and West Bengal are more likely to see the doctor after delivery as compared to women in Bihar (model-2 and 4). Women belonging to other religion (other then Muslim and Christian) are more likely to see the doctor after delivery as compared to Hindu women at 5 per cent significance level (model-1). The women having exposure to media have significantly positive effect on receiving postnatal care. As far as the birth is concerned only the first birth is significantly causing more use of postnatal care (model-1). The standard of living is not significant in postnatal care except in model-2 where it shows that, only the high class women are significantly more likely to use postnatal care as compared to women belonging to low standard of living.

Complication during pregnancy is positively significant in the use of postnatal care. Because this increases the risk factor for mother and child.

TABLE 5.9
Logistic Regression Results for Postnatal care in Eastern-mid-Indian Tribal Belt, NFHS-2 (1998-99)

Background Characteristics	MODEL 1 Odd Ratio: Exp(B)	MODEL 2 Odd Ratio: Exp(B)	MODEL 3 Odd Ratio: Exp(B)	MODEL 4 Odd Ratio: Exp(B)
Region				
Bihar (RC)				
Madhya Pradesh		0.872		0.836
Orissa		2.002***		1.653***
West Bengal		4.186***		3.295***
Caste/tribe				
Others(RC)				
OBC	0.536***	1.044	0.621***	1.078
SC	0.894	1.125	0.983	1.176
ST	0.534***	0.795	0.668**	0.93
Religion				
Hindu(RC)				
Muslim	1.072	0.897	1.25	1.065
Christian	1.096	1.308	1.203	1.373
Others	2.178**	2.025	1.841	1.754
Regular Exposure to media				
No (RC)				
Yes	1.486***	1.364***	1.291**	1.253**
Birth order of the last birth				
4&above(RC)				
3	1.145	0.99	1.031	0.923
2	1.4**	1.118	1.199	1.004
1				
Age of women at first union				
Less than 18(RC)				
18 and above	1.11	1.042	1.029	0.985
Pregnancy wastage before the last birth				
no wastage(RC)				
wastage	1.153	1.071	1.048	1.004
Household standard of living index				
Low(RC)				
Medium	0.933	1.082	0.88	1.01
High	1.023	1.593***	0.856	1.277
Pregnancy complications				
No (RC)				
Yes	1.265***	1.431***	1.232**	1.385***
Desirability of the last birth				
Wanted then(RC)				
Mistimed	1.186	1.072	1.187	1.086
Unwanted	1.144	1.159	1.2	1.191
Highest education level of the women				
Illiterate(RC)				
Literate,<mid complete	1.573***	1.291**	1.320**	1.167
Mid complte &above	1.787***	1.674***	1.235	1.251
Age of women				
20-29(RC)				
15-19	0.704***	0.794	0.748**	0.82
30-49	1.098	1.068	1.063	1.04
Place of residence				
Rural(RC)				
Urban	1.260**	1.320**	0.932	1.011
Full ANC				
No(RC)				
Yes			2.474***	1.977***
Safe delivery				
No(RC)				
Yes			2.232***	2.141***
Constant	0.068***	0.138***	0.061***	0.105***
Total women	7651	7651	7651	7651

***=sig. at 1%: **= 5%: *= 10 % level **source**: Computed from unit records of NFHS-2 (1998-99) data file

Educated women are significantly more likely to see the doctor after delivery (model-1 and 2). But the effect of education is lessened when the use of full ANC and safe delivery are added into the list of predictor variables (model-4).

The urban women are more likely to see the doctor than rural women. But the effect of type of residence becomes insignificant when the use of full ANC and safe delivery are added into the list of predictor variables.

The use of full ANC and safe delivery are strongly, positively and significantly affect the use of postnatal care as the results shows that the women who receive full ANC are more likely to use postnatal care.

Thus the regression result shows that the women in all the other states are significantly more likely to go for all the maternal health care services than women in Bihar. This is because all the other three states in the region are fairly more developed than Bihar. On the other hand Bihar is less developed and lagging behind in the proper implementation and utilization of the maternal health care services. Thus the state factor plays an important role in the utilization of the maternal health care services by women.

The membership factor also plays an important role in the utilization of the maternal health care services within the region as a whole. ST women are less likely to utilize ANC services, safe delivery and postnatal care.

5.3 STATE-WISE LOGISTIC REGRESSION ANALYSIS OF MATERNAL HEALTH CARE SERVICES.

In the previous section, the various socio-economic demographic and regional factors causing the utilization of health care services were discussed for the 'study region'. In this section, to study the net effect of various factors on utilization of maternal health care services at the state level, regression analysis is done for each state separately within the 'study region'. But in this exercise there is limitation of smallness of sample size. State individual weights provided by NFHS -2 has been employed and normalized. The results significant at 10 percent significant level have also been taken into consideration.

5.3.1 Logistic Regression Results for Full ANC in Different States

Table (5.10) shows the logistic regression results for the utilization of full ANC in four states of the 'study region' separately. First of all, the logistic regression results for Bihar shows that the OBC and SC women are less likely to use full ANC services as compared to 'Others'. The women belonging to the religion other than Hindu, Muslim and Christian are more likely to use full ANC services than Hindu women, the odd ratio being 7.403 at 1 percent significant level. The women at regular exposure to media, the women having the births of first and second order are also more likely to use full ANC services. The standard of living has significant effect on the utilization of full ANC services. The women having complication during pregnancy, women with educational level primary and middle class and above, women residing in urban areas are also significantly more likely to use ANC services.

For full ANC in Madhya Pradesh, only the ST women are significantly less likely to use the services. The Muslim women in Madhya Pradesh are anomalously more likely to get full ANC services than Hindu women. The bivariate analysis has also shown that in Madhya Pradesh the percentage of women receiving full ANC among Muslim women is more than

TABLE 5.10
Logistic regression Results for Full ANC in Different states, NFHS-2 (1998-99)

BackgroundCharacreristics	Bihar	Madhya Pradesh	Orissa	West Bengal
Caste/tribe				
Others(RC)				
OBC	0.749*	1.191	1.024	0.431**
SC	0.641*	1.017	0.912	0.888
ST	0.714	0.646**	0.524***	0.713
Religion				
Hindu(RC)				
Muslim	0.834	1.726***	0.691	0.528***
Christian	1.246	0.103*	1.211	1.067
Others	7.403***	0.893		1.712
Regular Exposure to media				
No (RC)				
Yes	2.046***	1.585***	1.315*	1.418**
Birth order of the last birth				
4&above(RC)				
3	1.397	1.238	1.413*	1.467
2	1.674**	1.446**	1.251	1.722**
1	1.73**	1.760***	2.232***	1.697**
Age of women at first union				
Less than 18(RC)				
18 and above	1.026	1.119	0.84	1.426*
Pregnancy wastage				
No wastage(RC)				
Wastage	1.123	1.484**	1.365**	1.311
Household standard of living index				
Low(RC)				
Medium	2.021***	1.473***	1.049	1.027
High	4.393***	2.129***	2.53***	0.775
Pregnancy complications				
No (RC)				
Yes	1.448**	1.604***	1.075	1.082
Desirability of the last birth				
Wanted then(RC)				
Mistimed	1.388	0.652**	0.623**	0.934
Unwanted	0.65	0.767	0.855	0.686
Highest education level of the women				
Illiterate(RC)				
Literate,<mid complete	1.495*	1.909***	1.328*	1.547***
Mid complte &above	2.532***	3.889***	2.473***	4.104***
Age of women				
20-29(RC)				
15-19	1.222	0.899	0.535***	0.909
30-49	1.086	1.172	0.9	0.986
Place of residence				
Rural(RC)				
Urban	3.03***	1.658***	1.006	2.651***
Constant	0.024***	0.045***	0.396***	0.329***
TOTAL WOMEN	**2640**	**2520**	**1361**	**1130**

*** Significant at 1 percent significance level
** Significant at 5 percent significance level
* Significant at 10 percent significance level
Source: Computed from unit records of NFHS-2 (1998-99) data file

Hindu women (Table 5.2B). This can be further researched to find out the reasons of this anomaly. On the other hand Christians in Madhya Pradesh are less likely to use full ANC services. Further the women having their first and second child , women who had pregnancy wastage before the last birth, women with middle and high standard of living, those who had complications during pregnancy , having educational level at primary and secondary and above and the urban women are more likely to get full ANC services. Regarding desirability of the birth, the women having their birth mistimed are less likely to go for full ANC services.

In Orissa also only the ST women are significantly less likely to go for full ANC services. The other variables having significant effect on use of full ANC are regular to mass media, first and third birth order pregnancy wastages, low standard of living, the mistiming of the birth, the educational level of the women and teenager women. The type of residences has no effect on the use of full ANC in Orissa.

In west Bengal the OBC women are less likely to use full ANC services .Muslims are far less likely to go for full ANC ;the odd ratio being 0.528 at 100 percent confidence level. The exposure to media, first and second order child is more likely to use full ANC. The women having the age of first union, 18 years and above are significantly more likely to use full ANC. The educated women and urban women are also significantly more likely to use full ANC.

5.3.2 Logistic Regression Results for Safe Delivery in Different States

For the safe delivery in Bihar, **(Table 5.11)** SC, ST and Muslim women and teenager women are significantly far less likely to have safe delivery. Women with regular exposure to media, having first child, having high standard of living, schooling of primary and above level, women with urban residence and women having full ANC services are significantly more likely to go for safe delivery when controlled for the other variables.

TABLE 5.11
Logistic regression Results for Safe Delivery in Different states, NFHS-2 (1998-99)

Background characteristics	Bihar	Madhya Pradesh	Orissa	West Bengal
Caste/tribe				
Others(RC)				
OBC	0.837	0.944	0.796	0.778
SC	0.706*	1.01	0.699*	0.704*
ST	0.180***	0.665**	0.457***	0.312***
Religion				
Hindu(RC)				
Muslim	0.573***	1.37	0.412*	0.244***
Christian	3.232	0.861	1.231	0.061*
Others	0.613	2.233		2.169
Regular Exposure to media				
No (RC)				
Yes	1.697***	1.580***	1.164	0.720*
Birth order of the last birth				
4&above(RC)				
3	1.178	1.760***	0.86	1.963**
2	1.223	1.561**	1.021	2.326***
1	2.881***	3.828***	3.163***	9.188***
Age of women at first union				
Less than 18(RC)				
18 and above	1.037	1.274	1.346*	1.378
Pregnancy wastage				
No wastage(RC)				
Wastage	1.231	1.426**	0.927	1.381
Household standard of living index				
Low(RC)				
Medium	1.23	1.098	1.534***	1.543**
High	2.86***	2.358***	2.294***	2.714***
Pregnancy complications				
No (RC)				
Yes	1.174	1.440***	0.975	1.033
Desirability of the last birth				
Wanted then(RC)				
Mistimed	0.927	1.053	0.97	1.112
Unwanted	1.171	0.936	0.828	1.751*
Highest education level of the women				
Illiterate(RC)				
Literate,<mid complete	1.542**	1.368**	1.373*	1.072
Mid complete &above	1.839***	2.554***	2.317***	2.449***
Age of women				
20-29(RC)				
15-19	0.695**	0.747*	0.644*	1.092
30-49	1.078	1.25	1.430*	1.229
Place of residence				
Rural(RC)				
Urban	2.019***	3.154***	3.221***	4.507***
Full ANC	3.982***	2.186***	2.043***	2.103***
Constant	0.119***	0.057***	0.171***	0.157***
TOTAL WOMEN	**2640**	**2520**	**1361**	**1130**

*** Significant at 1 percent significance level
** Significant at 5 percent significance level
* Significant at 10 percent significancc level
Source: Computed from unit records of NFHS-2 (1998-99) data file

In Madhya Pradesh, the situation is more or less similar to that of Bihar. Here, only ST women are statistically significantly less likely to have the safe delivery, amongst the social groups. The exposure to media, lower birth order, pregnancy wastage before the last birth, high standard of living, higher educational level, urban residence, use of full ANC services have significant positive effect over the use of safe delivery. On the other hand the teenager women are less likely to use safe delivery probably because of their ignorance and lesser say at home.

The results for Orissa shows that the women belonging to SC, ST, Muslim women, teenager women are less likely to use safe delivery. On the other hand, women having her first child, having medium and high standard of living, having schooling primary and middle school and above, women of the age group 30-49, urban women and women having full ANC are more likely to have safe delivery. Unlike Bihar and Madhya Pradesh exposure to media, complication during pregnancy has no significant effect on utilization of safe delivery in Orissa .Further the age of the women at first union 18 years and above has positive effect on the use of safe delivery.

The SC and ST women, the Muslim and Christian in West Bengal are less likely to have safe delivery. On the other hand birth order, standard of living, women with education above middle school, urban women and women having full ANC services are more likely to have safe delivery.

Thus it is seen from the above discussion that within a state, the ST, SC membership has significant effect on the use of safe delivery but not the other two social groups i.e. OBC and Others. The desirability of the birth has no significant effect on the use of safe delivery.

5.3.3 Logistic Regression Results for Postnatal Care in Different States

Two models for each state for the women who saw doctor within two months of delivery has been prepared. **(Table 5.12)** In second model the service factors i.e. use of full ANC and safe delivery have been added.

The result for Bihar depicts that the women having higher standard of living, having complications during pregnancy, mistimed child birth are more likely to go to see the doctor within two months of delivery. The women come to know many things regarding their maternal health care and awareness about the benefits of using health care facilities during their ANC visits and safe delivery. Because during this period they come in contact with the ANMs, doctors and other health workers. This can be the reason that the women having full ANC service and having safe delivery are more likely to go for postnatal care. In model 1, when the service factors are not taken, education of the women and media exposure play important positive role in the utilization of postnatal care. The type of residence, age of women has no significant effect in both the models in Bihar; caste factor has no role to play.

Results show that in Madhya Pradesh in model 1 only the first birth order, complication during pregnancy, primary and middle school education level of the women and urban women are significantly utilizing postnatal care, whereas in model 2, the effect of education has become insignificant and the positive utilization is governed by complications during pregnancy, urban residence and use of full ANC and safe delivery. Again in Madhya Pradesh the caste\tribe membership has no effect on utilization of postnatal care.

In Orissa, the Christian women are more likely to go for postnatal checkups .This is probably because literacy among Christians is more due to the effect of Christianity. Further pregnancy wastage before the birth, high standard of living, middle and above level of schooling are significantly more likely to go for postnatal care. The older women of age group 30-49 are less likely to go for postnatal care, probably because of their experience of the previous births. Generally the older women are multiparous women.

TABLE 5.12

Logistic regression Results for Women who Saw Doctor within two months of delivery in different States, NFHS-2 (1998-99)

Background characteristics	Bihar		Madhya Pradesh		Orissa		West Bengal	
Caste/tribe	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Others(RC)								
OBC	0.944	1.025	0.93	0.898	1.087	1.128	1.037	1.157
SC	0.934	1.051	0.878	0.864	1.004	1.09	1.361*	1.462**
ST	0.697	0.84	0.82	0.891	0.707	0.901	0.715	0.879
Religion								
Hindu(RC)								
Muslim	0.824	0.902	1.239	1.084	0.74	0.905	0.891	1.188
Christian	0.841	0.733	0.993	1.249	3.517***	3.577***	0.342	0.46
Others	2.034	1.531	1.789	1.71			2.475*	2.101
Regular Exposure to media								
No (RC)								
Yes	1.439**	1.206	1.171	1.034	1.142	1.05	1.467**	1.501***
Birth order of the last birth								
4&above(RC)								
3	1.173	1.136	1.069	1	0.711	0.661*	0.936	0.835
2	1.083	1.019	0.895	0.798	0.939	0.889	1.355	1.155
1	1.367	1.146	1.534*	1.242	1.214	0.827	2.362***	1.709**
Age of women at first union								
Less than 18(RC)								
18 and above	1.006	0.981	1.272	1.222	1.184	1.164	0.924	0.858
Pregnancy wastage								
No wastage(RC)								
Wastage	0.881	0.839	1.262	1.129	1.341*	1.291	0.974	0.915
Household standard of living index								
Low(RC)								
Medium	1.302*	1.212	1.084	1.012	0.981	0.885	0.951	0.881
High	2.466***	1.769**	1.289	1.038	1.79**	1.32	1.193	1.092
Pregnancy complications								
No (RC)								
Yes	1.790***	1.734***	1.496***	1.335*	0.978	0.966	1.423**	1.423**
Desirability of the last birth								
Wanted then(RC)								
Mistimed	1.447**	1.406*	1.072	1.142	1.088	1.229	0.905	0.9
Unwanted	1.18	1.229	1.08	1.136	1.176	1.264	1.197	1.15
Highest education level of the women								
Illiterate(RC)								
Literate,<mid complete	1.278	1.168	1.405**	1.198	1.076	0.933	1.342*	1.267
Mid complte &above	1.518**	1.18	1.603**	1.096	1.573**	1.121	1.725**	1.341
Age of women								
20-29(RC)								
15-19	0.904	0.932	1.021	1.049	0.738	0.896	0.652**	0.627**
30-49	0.985	0.966	1.123	1.072	0.659**	0.63**	1.408	1.395
Place of residence								
Rural(RC)								
Urban	1.005	0.76	1.986***	1.629***	0.985	0.799	1.191	0.908
Full ANC		2.52***		2.325***		2.411***		1.498***
Safe Delivery		1.962***		1.860***		2.559***		2.326***
Constant	0.059***	0.05***	0.058***	0.059***	0.275***	0.164***	0.254***	0.18***
TOTAL WOMEN	**2640**		**2520**		**1361**		**1130**	

*** Significant at 1 percent ** Significant at 5 percent * Significant at 10 percent significance level

Source: Computed from unit records of NFHS-2 (1998-99) data file

The second model shows that the service factors are significantly and positively affecting the use of postnatal care.

The results for West Bengal shows that interestingly the SC women are more likely to go for postnatal care. This is probably because of government efforts to make ANM visits after the delivery into the backward class of the society. The bivariate analysis has also shown that the utilization of postnatal care by different social groups is more or less similar in West Bengal. (table 5.7B) The model 1 shows the significant positive effect of the religion other than Hindu, Muslim and Christian, exposure to mass media, first birth, complications and education on the use of postnatal visits to the doctor in West Bengal. The teenager women are less likely to see the doctor. The results in model 2 is almost similar ,except that the effect at the educational level become statistically insignificant in model 2 and the efforts of service factors come up strongly.

Thus within a state caste/tribe factor, religion, standard of living, desirability of the birth has not significant effect on utilization of postnatal care. The effect of education also becomes insignificant when the service factors are taken into consideration.

Thus from the above discussion, it is seen that the various socio-economic and demographic factors affecting the utilization of different health care services vary from one state to another. As far as the membership to caste/tribe per se is concerned to affect the use of maternal health care services the state wise logistic regression shows that in Bihar the OBC and SC women are less likely to use full ANC as compared to 'Other' women. In Orissa and West Bengal the differential regarding antenatal care disappears between SC, OBC and 'Other'women after adjusting the effect of socio-economic factors. In these two states the ST women are less likely to use full ANC. In West Bengal only the OBC women are significantly less likely to use full ANC.

Regarding safe delivery, within the state, differential between the OBC women and women in 'other' category disappear once the effect of socio-economic factors is adjusted in all the four states. The differential between SC and 'Other' category women is significant at 5

percent significant level except in Madhya Pradesh. In these three states the SC women are less likely to use full ANC than women in 'Other' category. The condition of ST women in terms of safe delivery is worse in every state in the study region. In every state the ST women are far less likely to have the safe delivery. Thus the ST membership per se causes the less use of safe delivery in individual state.

Within a state, the caste/tribe factor per se has not significant role to play to cause the differential in the use of postnatal health care services. The differential between ST, SC and 'Others'women regarding postnatal care disappears in all the states. Only in West Bengal SC women are more likely to go for postnatal care. It could be that West Bengal being a state with 24.4 percent of SC women (table 4.1); the programme has taken a specific care to focus on the disadvantaged groups like scheduled castes.

5.4 REASONS FOR NOT SEEKING ANTENATAL SERVICES

After the analysis of differential in the utilization pattern of maternal health care for tribal and non tribal women in the 'study region' an effort has been made to understand the behavior of tribal and non-tribal women in seeking the maternal care. In this section, the reasons for non utilization of ANC services by the women have been discussed in the study region.

Table (5.14) shows that the individual perception that receiving health care services is 'not necessary' is the prime reason for not receiving the ANC services for both the non-tribal and tribal women. More than half of the women (61.5 per cent non-tribal and 57.5 per cent tribal) do not use ANC services because of this reason. The women's perception is that the pregnancy is one routine phenomenon which need not be given proper attention and care. The second most important reason is the economic reason. The cost of the services put hindrance in the use of services in both the tribal and non-tribal communities.

TABLE 5.14
Main Reasons for Not Receiving ANC services by Women in Eastern-mid- Indian tribal belt (in percent), NFHS-2 (1998-99)

Reasons for not seeking ANC	Non -Tribal	Tribal	All
Not necessary	61.5	57.5	60.8
Not customary	2.9	3.5	3.0
Cost too much	20.2	18.2	19.8
Inconvenient/too far	2.3	6.8	3.1
Poor quality/service	0.4	0.6	0.4
No time to go	1.1	2.0	1.2
Family did not allow	6.4	2.9	5.8
Lack of knowledge	3.1	3.5	3.2
No health worker visited	1.1	4.1	1.6
Other	1.1	0.8	1.0
Total Women	**2445**	**511**	**2956**

Source: Computed from unit records of NFHS-2 (1998-99) data file

In case of non-tribal women the third main reason for not receiving ANC check-up is the lack of family support. The family does not allow the woman to use it. The woman has a low say in the decision making regarding her own health. Women are not allowed to go out during pregnancy. Even if the services are available and affordable, the lack of knowledge is the fourth important reason for non-tribal women. The fifth reason being that they think that it is 'not customary'.

One of the most important reasons for not using ANC services for tribal women is the inconvenience or the farness of the health facilities. Tribals inhabit mostly in rural and interior places where the health facilities are not located. The next important reason is the lack of knowledge. Another important reason is that no health worker visited to them.

From the previous analysis, it has been shown that use of antenatal care affects the use of safe delivery and postnatal care. So the same reasons can be attributed for the use of safe delivery and postnatal care.

CHAPTER 6

SUMMARY AND CONCLUSION

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In today's world an increasing importance is given to social justice and equality. Keeping this background the 30th World Health Assembly resolved in May, 1977 that main social target of governments and WHO should be the attainment by all citizens of the world a level of health that will permit them to lead a socially and economically productive life. 'Health for all' means that health is to be brought within the reach of every one in the society. It also implies the removal of obstacles to health. But in reality this is not seen in the society. Mothers being the most important entity for their valuable contribution to giving life to the world are not provided with basic necessary health care services during the vital job of childbirth. India also has adopted the objective of 'Health for all'. But in India too, there is differential in the maternal health care utilization pattern in different sections of society.

The socio-economic conditions of the society cause the variation in the utilization of maternal health care services by different social groups in India. The present research paper has tried to study the differential in the utilization of maternal health care services with special emphasis on the condition of Scheduled tribes which are considered the most disadvantaged and unprivileged group of society. For this purpose four states in the Eastern-mid India have been taken where there is significant number of tribal and non- tribal population for the comparative study. The study has been done in two stages. First the situation of maternal health care utilization in the 'study region' has been compared with the national averages. Secondly, within the region also the comparative study has been done among the states. The data is provided by NFHS-2 conducted in 1998-99 for ever married women in the age group 15-49. In the present study only those women who had their last birth in the last three years preceding the date of survey have been considered. There are four caste/tribe groups considered in the study- scheduled tribe, scheduled caste, other backward class and 'Others'. These four groups are further narrowed down two broad groups – tribal and non-tribal. The analysis of differential in utilization of maternal health care services by different social groups is followed by the analysis of the factors affecting the utilization of maternal health care services by women.

Summary of findings-

The findings of the study show that the differential exists within and between tribal and non-tribal groups. The analysis presented in this paper has enabled the examination of the differences in the maternal health care utilization between these very diverse sub-groups. The tribal women are the least users of maternal health care among the four social groups in all the states. However, although the tribal group always displays low rates of utilization, other socio-economic factors were consistently found to be associated with varying patterns of maternal health care use within tribal and non-tribal groups.

Analysis of differential between the major caste/tribe groups in Indian society, presented in this paper has brought out the effect of social stratification on utilization of health care. It clearly brings out that differentials between ST, SC, OBC women and women in 'Other' category are partly due to difference in socio-economic conditions. But the differential persists even after adjusting the effect of socio-economic factors. In the 'study region' for the utilization of full ANC and safe delivery the women belonging to ST, SC and OBC categories are significantly less likely to use these maternal care services as compared to women in 'other' category. But in case of postnatal care only the ST and OBC women are less likely to use this care. The individual state level study exhibits that in case of use of full ANC the ST women only in Madhya Pradesh and Orissa are significantly less likely to use the services when all the other factors are controlled. This is probably because Madhya Pradesh and Orissa have a largest ST population within the study region and they are the most backward social group. In terms of safe delivery, both ST and SC women are significantly less likely to seek safe delivery in all the four states. This shows that ST membership affects the utilization of full ANC and safe delivery in those states. The caste/tribe has no effect on the use of postnatal care. But consistently women in ST category occupy the lowest position in terms of socio-economic development as well as utilization of maternal health care utilization.

The regional factor also has tremendous effect on the utilization pattern of maternal health care. In the logistic regression when state is taken as an independent variable, the state factor lessens the effect of caste/tribe factor. This shows that in the 'study region' the regional endowment, the belongingness to a particular state and the development status of the state becomes much important than the membership to a particular caste/tribe per se. this implies that if a region or state is socio-economically developed all the sections of the society will be having equal opportunities to the utilization of maternal health care.

The regional differential shows that the states like West Bengal which are doing relatively well in terms of socio-economic development are showing good overall performance in the utilization of maternal health care. For example the literacy rate is 68.6 percent against 64.8 percent for all India. Similarly TMFR is 4.1, IMR 49, MMR 264 as against 4.7, 63, 408 respectively for all India (Table 1.1). On the other hand the less developed poor state like Bihar are also the poor performance state in terms of utilization of maternal health care. But overall, The Eastern-mid –Indian tribal belt is comparably poor performing region as compared to the national averages both in terms of socio-economic development and also the utilization of maternal health care services. Eastern-mid-Indian tribal belt is performing worse in the utilization of maternal health care services as compared to all the other states of the country in each caste/tribe category. But the differential for ST women in between the 'study region' and country as a whole is very high. The percentage of ST women receiving full ANC in 'study region' is half the percentage of ST women receiving full ANC in other states of India (15 and 30 percent respectively). So this region requires socio-economic development and also special efforts for improvement in utilization of maternal health care with focus on ST women.

The effect of various factors affecting the utilization of maternal health care services show that the urban women, the women belonging to high standard of living better educated women having good exposure to media women having their first or second child, women having pregnancy wastage in the past, having complications during pregnancy are more likely to use the maternal health care services. The link between education and use of maternal care seems much powerful. Women with primary or middle school education are

more likely to have maternal care than women with no education On the other hand ST women, Muslim women, women having low standard of living the teenager women are less likely to have maternal health care. Age does not appear to be a significant determinant of use of maternal care; although teenager and older women of age above 30 do have lower levels of antenatal care use than women aged between 20-29. Wealth distribution also appears to be a major determinant of use of maternal care.

The programme factors also have effect on the utilization of maternal health care services. The encouraging finding is that there is a positive relation between ANC use, safe delivery and postnatal care. The women using any ANC are three times more using safe delivery than the women who are not having any ANC visit. This figure further increases to five times for those who had full ANC. The women using safe delivery are thrice more using postnatal care. This is so because the women going for antenatal care are also getting information and awareness about the necessity and benefit of further maternal health care use.

The results have also shown the differentials in the use of postnatal care by different social groups are lesser as compared to the antenatal care and delivery care. This is probably because of negligence of postnatal care even by better performing social groups.

The findings also showed that though the scheduled tribes are at the lowest position in terms of maternal health care utilization. But the study shows that if given the chance and provide with the facilities they are better performers than the other social groups in terms of utilization of maternal health care. This can be proved by the higher utilization of maternal health care among urban STs, the ST women with high standard of living than the urban 'Others' and high class 'other' women. This implies that the STs are not against modern maternal health care. The need is that the facilities should be provided to them. In view of the present day need for rapid development of the tribal areas for all round development of our country emphasis should be made on the improvement of quality of life and life chances of the tribal groups through economic and educational development without destroying their traditions.

Socio-economic and geographical isolation are great barrier for improving status of tribals. The tribals socio-cultural norms are different to general population, having distinct customs, traditions, depending on forest and traditional agricultural technology. The practices of poverished economy and exploitation have made them economically poor. The tribes inhabit in scattered type of settlement on hills and forests. In such situation of habitat improve physical infra-structural facilities such as roads, electricity, buildings, transportations are difficult task. There is lack of manpower, link road between the tribal villages and health centers. Tribals are economically hand to mouth. The number of health and medical institutions available is entirely inadequate to serve even minimum needs of the health. The findings show that the most important reason of 'not' seeking antenatal care for tribal women is – they don't think it 'necessary'. The second important reason being 'the cost is too much' and the third reason being the health facilities are 'too far'. These problems should be kept in mind while framing the development policies.

Suggestions -

- Due to local geographical and ecological conditions and relatively less accessible areas of tribal habitations, the mobile dispensaries and health centers shall be more purposeful than the static one.

- The speedy spread of health education among the tribals is very crucial. As most of the tribals are illiterate, various audio-visual methods may be adopted to put across to them the basic principles of health and sanitation.

- For raising the standard of health of the tribals, cooperative endeavor is necessary among the States, the Center, the non-official organizations and the medical personnel.

- Local practitioner of traditional medicines and traditional birth attendants (Dais) are required to be properly trained and equipped

- Many tribal communities are dependent upon indigenous system of medicine, which necessitates a regular supply of local flora, fauna and minerals, or of standardized medication derived from these. Husbandry of such local resources and of preparation and distribution of standardized formulations should be encouraged

- The low pattern of utilization in the 'Study region' as compared to the country as a whole and in the state of Bihar within the study region can be attributed to inadequate outreach services in these states. So the effort should be made for the overall socio-economic development of the state

- Since health care centers are concentrated in urban areas, rural area programmes should aim to improve the outreach of health care delivery by providing a better local network of health workers.

- Improving women's education and making greater use of the media to spread information can enhance the demand for maternity services.

Thus the policy should be emphasizing on the improvement of health care and and reduce disparities. It is shown in the present study that the weaker section do receive less care but the results show that educational factor, economic factors are primary cause for this. Adequate infrastructure facilities needed for improving the level of literacy, economic condition by creating new jobs based on agriculture, forest, forest productions etc. Surveillance team needed for monitoring the development programme regularly. In-depth socio-economic survey needed to find out the main hindrance in development of tribals.The overall deveplpoment of the society is possible only when the low trodden backward classe are uplifted. At last it can be said that development will over-rule the differentials in utilization in utilization of maternal health care and will help in creating a society where the objective of 'health for all' will be achieved. This will be also an act to honor all the mothers of all the sections of society for their priceless contribution in maintaining life on earth.

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APPENDICES

Appendix 1

Percentage distribution of Deaths by cause under child birth and pregnancy, India -1998 (Their percentage to total deaths, total female deaths and female deaths under reproductive age group)

Abortion	12.4
Toxemia	9.9
Anaemia	23.7
Bleeding during pregnancy and puerperium	23.3
Malposition of child	7.4
Puerperal sepsis	9.8
Not classifiable symptoms	13.8
(A) Total maternal death	100.0
(B) Total female death	1.6*
©· Female death reported under reproductive group (15-44)	9.8**
(D) total reproductive death	0.7***

Note: * = A/B x 100
** = A/C x 100
*** = A/D x 100
source: Survey of causes of death, 1998, RGI

Appendix 2
Tribal Population in India 2001

State/Union territory	%OF TOTAL ST POP.IN INDIA	% TO TOTAL POP. of state	NO.OF TRIBAL GROUPS
INDIA		8.3	
Jammu & Kashmir	1.31	10.9	12
Himachal Pradesh	0.29	4	8
Punjab	0	0	0
Chandigarh *	0	0	0
Uttaranchal	0.3	3	
Haryana	0	0	0
Delhi *	0	0	0
Rajasthan	8.42	12.6	12
Uttar Pradesh	0.13	0.1	5(including Uttranchal)
Bihar	0.9	0.9	30(including jharkhand)
Sikkim	0.13	20.6	2
Arunachal Pradesh	0.84	64.2	12
Nagaland	2.1	89.1	5
Manipur	0.88	34.2	29
Mizoram	1	94.5	14
Tripura	1.18	31.1	19
Meghalaya	2.36	85.9	17
Assam	3.92	12.4	14
West Bengal	5.23	5.5	38
Jharkhand	8.4	26.3	
Orissa	9.66	22.1	62
Chhatisgarh	7.85	31.8	
Madhya Pradesh	14.5	20.3	46(including chattisgarh)
Gujarat	8.88	14.8	29
Daman & Diu *	0.12	8.8	5
Dadra & Nagar Haveli *	0.16	62.2	7
Maharashtra	10.17	8.9	47
Andhra Pradesh	5.96	6.6	33
Karnataka	4.11	6.6	49
Goa	0.001	0	5
Lakshadweep *	0.07	94.5	
Kerala	0.43	1.1	35
Tamil Nadu	0.77	1	36
Pondicherry *	0	0	
Andaman & Nicobar *	.O3	8.3	6

* Union Territories ; ST= Scheduled tribe
Source: Census of India, 2001

ANNEXURE 3

Maternal mortality Rate, India and Bigger States 1997

Major states	Maternal Mortality Rate(MMR)
Andhra Pradesh	154
Assam	401
Bihar	451
Gujarat	29
Haryana	105
Karnataka	195
Kerala	195
Madhya Pradesh	498
Maharashtra	135
Orissa	361
Punjab	196
Rajasthan	677
Tamilnadu	76
Uttar Pradesh	707
West Bengal	264
India	408

Source: RGI , Sample Registration System 1997

ANNEXURE 4

Pearson Chi square results between four cast/tribe groups and different socio-economic Background characteristics

	Residence		Religion		Education		Std.of living		media exposure	
	χ^2	sig.	χ^2	sig.	χ^2	sig.	χ^2	sig.	χ^2	sig.
India	586.86	.000	3961.65	.000	1502.93	.000	2402.72	.000	794.88	.000
Study region	141.69	.000	1435.91	.000	736.47	.000	547.83	.000	375.06	.000
Bihar	13.88	.003	597.02	.000	173.87	.000	304.01	.000	105.00	.000
Madhya Pradesh	165.46	.000	265.51	.000	309.58	.000	323.69	.000	176.51	.000
Orissa	16.13	.001	66.08	.000	277.21	.000	231.02	.000	196.69	.000
Weat Bengal	34.35	.000	385.35	.000	63.77	.000	46.33	.000	22.734	.000

Pearson Chi square results between two tribal/non tribal groups and different socio-economic Background characteristics

	Residence		Religion		Education		Std.of living		media exposure	
	χ^2	sig.	χ^2	sig.	χ^2	sig.	χ^2	sig.	χ^2	sig.
India	273.96	.000	848.01	.000	438.50	.000	527.22	.000	451.79	.000
Study region	93.89	.000	439.63	.000	202.60	.000	110.925	.000	135.81	.000
Bihar	6.01	.014	322.46	.000	6.163	.046	27.86	.000	22.02	.000
Madhya Pradesh	119.69	.000	107.85	.000	128.84	.000	108.52	.000	108.86	.000
Orissa	8.67	.003	11.41	.000	146.93	.000	84.18	.000	123.05	.000
Weat Bengal	17.35	.000	167.15	.000	28.18	.000	12.79	.002	20.82	.000

Pearson Chi square results between four cast/tribe groups and different Maternal health care utilization indicators

	Any ANC		Full ANC		Institutional Delivery		Safe delivery		Postnatal care	
	χ^2	sig.	χ^2	sig.	χ^2	sig.	χ^2	sig.	χ^2	sig.
India	288.72	.000	405.25	.000	701.34	.000	707.17	.000	283.86	.000
Study region	408.81	.000	352.34	.000	406.26	.000	328.54	.000	239.07	.000
Bihar	59.63	.000	62.71	.000	94.08	.046	79.13	.000	12.53	.006
Madhya Pradesh	131.67	.000	119.18	.000	163.20	.000	159.36	.000	32.34	.000
Orissa	63.94	.003	61.28	.000	103.64	.000	96.42	.000	17.88	.000
West Bengal	10.42	.015	4.17	.244	15.13	.002	17.23	.001	6.44	.092

Pearson Chi square results between four cast/tribe groups and different Maternal health care utilization indicators

	Any ANC		Full ANC		Institutional Delivery		Safe delivery		Postnatal care	
	χ^2	sig.	χ^2	sig.	χ^2	sig.	χ^2	sig.	χ^2	sig.
India	113.27	.000	265.22	.000	395.51	.000	484.37	.000	222.56	.000
Study region	56.35	.000	76.36	.000	142.74	.000	162.96	.000	49.48	.000
Bihar	4.97	.024	1.69	.193	11.73	.001	29.76	.000	2.75	.097
Madhya Pradesh	104.88	.000	79.25	.000	92.73	.000	101.27	.000	16.22	.000
Orissa	63.88	.000	48.36	.000	48.22	.000	57.06	.000	14.42	.000
West Bengal	0.83	.362	3.97	.046	12.24	.000	12.83	.000	4.34	.037

Source: Computed from unit records of NFHS-2 data file

N.B: these pertain to only those women having last birth in last three years prior to the date of survey

Appendix 5
Logistic Regression Results for Full ANC in Eastern-Mid-Indian Tribal Belt (Model 1)

Background characteristics	B	S.E.	Wald	df	Sig.	Exp. (B)
Caste/Tribe						
Others (RC)			89.849	3	.000	
OBC	-.683	.076	80.262	1	.000	.505
SC	-.271	.089	9.276	1	.002	.763
ST	-.629	.114	30.305	1	.000	.533
Religion						
Hindu (RC)			15.065	3	.002	
Muslim	-.240	.091	6.969	1	.008	.787
Christian	-.393	.357	1.215	1	.270	.675
Other	.718	.287	6.268	1	.012	2.051
Regular exposure to media						
No (RC)						
Yes	.591	.071	69.019	1	.000	1.805
Birth Order of the last birth						
Fourth and above			57.079	3	.000	
3	.440	.102	18.748	1	.000	1.553
2	.623	.100	38.732	1	.000	1.865
1	.815	.110	54.640	1	.000	2.258
Age of woman at first union						
Less than 18 (RC)						
18 and above	.228	.079	8.218	1	.004	1.256
Any Pregnancy wastage before the last birth						
No (RC)						
Yes	.370	.084	19.541	1	.000	1.448
Household standard of living index						
Low (RC)			5.775	2	.056	
Medium	.063	.070	.794	1	.373	1.065
High	.267	.112	5.677	1	.017	1.305
Any complication during pregnancy						
No (RC)						
Yes	.132	.066	4.026	1	.045	1.142
Desirability of the last birth						
Wanted then (RC)			10.594	2	.005	
Mistimed	-.022	.089	.059	1	.808	.979
Unwanted	-.374	.115	10.569	1	.001	.688
Highest Educational Level of the woman						
Illiterate (RC)			154.696	2	.000	
Literate,<mid compete	.687	.078	77.022	1	.000	1.987
Mid complete and above	1.107	.094	137.315	1	.000	3.026
Age of the woman						
20-29 (RC)			6.462	2	.040	
15-19	-.239	.098	5.881	1	.015	.788
30-49	.080	.096	.688	1	.407	1.083
Place of Residence						
Rural (RC)						
Urban	.733	.080	84.639	1	.000	2.082
Constant	-2.118	.123	296.836	1	.000	.120

Total no. of women (unweighted) = 7651
Source: computed from unit records of NFHS-2 (1998-99) data file

Appendix 6
Logistic Regression Results for Full ANC in Eastern-Mid-Indian Tribal Belt (Model 2)

Background Characteristics	B	S.E.	Wald	df	Sig.	Exp. (B)
Region						
Bihar (RC)			458.281	3	.000	
Madhya Pradesh	.510	.090	31.907	1	.000	1.665
Orissa	1.667	.105	251.986	1	.000	5.295
West Bengal	1.821	.096	359.166	1	.000	6.181
Caste/Tribe						
Others (RC)			11.991	3	.007	
OBC	-.016	.089	.032	1	.858	.984
SC	-.073	.093	.618	1	.432	.929
ST	-.387	.121	10.314	1	.001	.679
Religion						
Hindu (RC)			18.683	3	.000	
Muslim	-.342	.097	12.336	1	.000	.711
Christian	-.246	.369	.446	1	.504	.782
Other	.643	.288	4.972	1	.026	1.901
Regular exposure to media						
No (RC)						
Yes	.464	.074	39.023	1	.000	1.590
Birth Order of the last birth						
Fourth and above			26.037	3	.000	
3	.314	.104	9.061	1	.003	1.369
2	.414	.104	15.799	1	.000	1.512
1	.581	.115	25.587	1	.000	1.788
Age of woman at first union						
Less than 18 (RC)						
18 and above	.102	.083	1.487	1	.223	1.107
Any Pregnancy wastage before the last birth						
No (RC)						
Yes	.280	.087	10.341	1	.001	1.323
Household standard of living index						
Low (RC)			37.949	2	.000	
Medium	.244	.074	11.024	1	.001	1.277
High	.734	.119	37.875	1	.000	2.084
Any complication during pregnancy						
No (RC)						
Yes	.242	.069	12.303	1	.000	1.274
Desirability of the last birth						
Wanted then (RC)			8.837	2	.012	
Mistimed	-.120	.092	1.678	1	.195	.887
Unwanted	-.333	.118	7.939	1	.005	.716
Highest Educational Level of the woman						
Illiterate (RC)			135.835	2	.000	
Literate,<mid compete	.450	.081	30.665	1	.000	1.568
Mid complete and above	1.157	.100	135.119	1	.000	3.181
Age of the woman						
20-29 (RC)			1.596	2	.450	
15-19	-.124	.103	1.445	1	.229	.884
30-49	.042	.099	.177	1	.674	1.043
Place of Residence						
Rural (RC)						
Urban	.777	.084	85.067	1	.000	2.176
Constant	-3.227	.143	508.263	1	.000	.040

Total no. of women (unweighted) = 7651
Source: computed from unit records of NFHS-2 (1998-99) data file

Appendix 7
Logistic Regression results for Safe Delivery in Eastern-Mid-Indian Tribal Belt
Model 1

Background Characteristics	B	S.E	Wald	df	Sig.	Exp. (B)
Caste/Tribe						
Others (RC)			86.884	3	.000	
OBC	-.456	.076	36.106	1	.000	.634
SC	-.322	.089	13.160	1	.000	.724
ST	-1.047	.118	78.658	1	.000	.351
Religion						
Hindu (RC)			60.999	3	.000	
Muslim	-.677	.092	54.076	1	.000	.508
Christian	-.145	.357	.164	1	.685	.865
Other	.742	.310	5.743	1	.017	2.100
Regular exposure to media						
No (RC)						
Yes	.364	.069	27.481	1	.000	1.438
Birth Order of the last birth						
Fourth and above			235.691	3	.000	
3	.379	.100	14.336	1	.000	1.460
2	.499	.100	25.039	1	.000	1.647
1	1.495	.108	192.421	1	.000	4.459
Age of woman at first union						
Less than 18 (RC)						
18 and above	.278	.080	12.247	1	.000	1.321
Any Pregnancy wastage before the last birth						
No (RC)						
Yes	.278	.083	11.088	1	.001	1.320
Household standard of living index						
Low (RC)			66.814	2	.000	
Medium	.222	.067	10.967	1	.001	1.249
High	.945	.116	66.760	1	.000	2.572
Any complication during pregnancy						
No (RC)						
Yes	.165	.065	6.339	1	.012	1.179
Desirability of the last birth						
Wanted then (RC)			.890	2	.641	
Mistimed	.053	.090	.352	1	.553	1.055
Unwanted	.084	.104	.647	1	.421	1.087
Highest Educational Level of the woman						
Illiterate (RC)			109.247	2	.000	
Literate,<mid compete	.427	.078	30.099	1	.000	1.532
Mid complete and above	.987	.096	106.284	1	.000	2.682
Age of the woman						
20-29 (RC)			13.310	2	.001	
15-19	-.288	.095	9.136	1	.003	.750
30-49	.199	.094	4.475	1	.034	1.220
Place of Residence						
Rural (RC)						
Urban	1.232	.083	221.284	1	.000	3.427
Constant	-2.025	.121	278.044	1	.000	.132

Total no. of women(unweighted) = 7651
Source: computed from unit records of NFHS-2 (1998-99) data file

Appendix 8
Logistic Regression results for Safe Delivery in Eastern-Mid-Indian Tribal Belt
Model 2

Background Characteristics	B	S.E.	Wald	df	Sig.	Exp. (B)
Region						
Bihar (RC)			85.198	3	.000	
Madhya Pradesh	-.036	.080	.201	1	.654	.965
Orissa	.288	.102	7.878	1	.005	1.333
West Bengal	.738	.089	69.178	1	.000	2.092
Caste/Tribe						
Others (RC)			50.898	3	.000	
OBC	-.143	.084	2.906	1	.088	.866
SC	-.219	.091	5.844	1	.016	.803
ST	-.850	.122	48.811	1	.000	.428
Religion						
Hindu (RC)			74.644	3	.000	
Muslim	-.786	.095	69.107	1	.000	.456
Christian	-.053	.360	.021	1	.884	.949
Other	.591	.300	3.872	1	.049	1.806
Regular exposure to media						
No (RC)						
Yes	.315	.071	19.876	1	.000	1.371
Birth Order of the last birth						
Fourth and above			211.722	3	.000	
3	.322	.100	10.248	1	.001	1.379
2	.401	.101	15.751	1	.000	1.493
1	1.394	.109	164.024	1	.000	4.031
Age of woman at first union						
Less than 18 (RC)						
18 and above	.252	.081	9.804	1	.002	1.287
Any Pregnancy wastage before the last birth						
No (RC)						
Yes	.244	.084	8.431	1	.004	1.277
Household standard of living index						
Low (RC)			93.769	2	.000	
Medium	.298	.068	19.003	1	.000	1.347
High	1.151	.119	93.769	1	.000	3.162
Any complication during pregnancy						
No (RC)						
Yes	.206	.066	9.673	1	.002	1.228
Desirability of the last birth						
Wanted then (RC)			.682	2	.711	
Mistimed	-.002	.091	.000	1	.987	.998
Unwanted	.085	.104	.666	1	.415	1.089
Highest Educational Level of the woman						
Illiterate (RC)			100.675	2	.000	
Literate,<mid compete	.328	.079	17.222	1	.000	1.389
Mid complete and above	.969	.097	100.475	1	.000	2.635
Age of the woman						
20-29 (RC)			10.147	2	.006	
15-19	-.237	.096	6.059	1	.014	.789
30-49	.196	.094	4.328	1	.037	1.217
Place of Residence						
Rural (RC)						
Urban	1.269	.085	224.112	1	.000	3.556
Constant	-2.347	.132	317.663	1	.000	.096

Total no. of women(unweighted) = 7651

Source: computed from unit records of NFHS-2 (1998-99) data file

Appendix 9
Logistic Regression results for Safe Delivery in Eastern-Mid-Indian Tribal Belt
Model 3

Background Characteristics	B	S.E.	Wald	df	Sig.	Exp. (B)
Caste/Tribe						
Others (RC)			65.453	3	.000	
OBC	-.343	.078	19.331	1	.000	.710
SC	-.278	.091	9.430	1	.002	.757
ST	-.954	.120	63.459	1	.000	.385
Religion						
Hindu (RC)			52.328	3	.000	
Muslim	-.649	.094	47.927	1	.000	.522
Christian	-.109	.366	.090	1	.765	.896
Other	.567	.306	3.435	1	.064	1.763
Regular exposure to media						
No (RC)						
Yes	.267	.071	14.183	1	.000	1.306
Birth Order of the last birth						
Fourth and above			210.123	3	.000	
3	.327	.101	10.419	1	.001	1.387
2	.407	.102	15.984	1	.000	1.502
1	1.408	.110	164.031	1	.000	4.088
Age of woman at first union						
Less than 18 (RC)						
18 and above	.246	.081	9.139	1	.003	1.279
Any Pregnancy wastage before the last birth						
No (RC)						
Yes	.213	.085	6.248	1	.012	1.238
Household standard of living index						
Low (RC)			60.652	2	.000	
Medium	.221	.068	10.456	1	.001	1.247
High	.918	.118	60.642	1	.000	2.505
Any complication during pregnancy						
No (RC)						
Yes	.140	.067	4.449	1	.035	1.151
Desirability of the last birth						
Wanted then (RC)			2.238	2	.327	
Mistimed	.072	.091	.617	1	.432	1.074
Unwanted	.144	.106	1.869	1	.172	1.155
Highest Educational Level of the woman						
Illiterate (RC)			66.057	2	.000	
Literate,<mid compete	.307	.080	14.812	1	.000	1.360
Mid complete and above	.799	.099	65.378	1	.000	2.223
Age of the woman						
20-29 (RC)			10.568	2	.005	
15-19	-.255	.097	6.876	1	.009	.775
30-49	.189	.095	3.934	1	.047	1.208
Place of Residence						
Rural (RC)						
Urban	1.134	.085	178.613	1	.000	3.108
Received Full ANC						
No (RC)						
Yes	.973	.067	209.591	1	.000	2.645
Constant	-2.170	.124	306.668	1	.000	.114

Total no. of women (unweighted) = 7651
Source: computed from unit records of NFHS-2 (1998-99) data file

Appendix 10
Logistic Regression results for Safe Delivery in Eastern-Mid-Indian Tribal Belt
Model 4

Background Characteristics	B	S.E.	Wald	df	Sig.	Exp. (B)
Region						
Bihar (RC)			39.993	3	.000	
Madhya Pradesh	-.096	.081	1.396	1	.237	.908
Orissa	.044	.106	.171	1	.679	1.045
West Bengal	.481	.092	27.154	1	.000	1.618
Caste/Tribe						
Others (RC)			44.692	3	.000	
OBC	-.139	.085	2.661	1	.103	.870
SC	-.217	.092	5.601	1	.018	.805
ST	-.805	.123	42.835	1	.000	.447
Religion						
Hindu (RC)			64.257	3	.000	
Muslim	-.746	.096	60.611	1	.000	.474
Christian	-.036	.367	.010	1	.922	.965
Other	.458	.299	2.337	1	.126	1.581
Regular exposure to media						
No (RC)						
Yes	.251	.072	12.207	1	.000	1.286
Birth Order of the last birth						
Fourth and above			197.460	3	.000	
3	.291	.102	8.224	1	.004	1.338
2	.344	.103	11.245	1	.001	1.411
1	1.345	.111	147.917	1	.000	3.840
Age of woman at first union						
Less than 18 (RC)						
18 and above	.243	.082	8.782	1	.003	1.275
Any Pregnancy wastage before the last birth						
No (RC)						
Yes	.201	.086	5.501	1	.019	1.223
Household standard of living index						
Low (RC)			76.646	2	.000	
Medium	.273	.069	15.514	1	.000	1.314
High	1.059	.121	76.645	1	.000	2.885
Any complication during pregnancy						
No (RC)						
Yes	.169	.067	6.392	1	.011	1.185
Desirability of the last birth						
Wanted then (RC)			1.554	2	.460	
Mistimed	.027	.092	.087	1	.768	1.027
Unwanted	.131	.106	1.538	1	.215	1.140
Highest Educational Level of the woman						
Illiterate (RC)			65.117	2	.000	
Literate,<mid compete	.260	.081	10.401	1	.001	1.297
Mid complete and above	.802	.099	65.067	1	.000	2.230
Age of the woman						
20-29 (RC)			9.005	2	.011	
15-19	-.224	.098	5.216	1	.022	.800
30-49	.191	.095	4.006	1	.045	1.211
Place of Residence						
Rural (RC)						
Urban	1.177	.087	185.021	1	.000	3.244
Received Full ANC						
No (RC)						
Yes	.888	.070	161.957	1	.000	2.430
Constant	-2.339	.133	308.725	1	.000	.096

Total no. of women (unweighted) = 7651
Source: computed from unit records of NFHS-2 (1998-99) data file

Appendix 11
Logistic Regression results for Postnatal Care in Eastern-Mid-Indian Tribal Belt
Model 1

Background Characteristics	B	S.E.	Wald	df	Sig.	Exp. (B)
Caste/Tribe						
Others (RC)			87.264	3	.000	
OBC	-.624	.077	66.325	1	.000	.536
SC	-.113	.088	1.649	1	.199	.894
ST	-.627	.116	28.967	1	.000	.534
Religion						
Hindu (RC)			8.914	3	.030	
Muslim	.069	.088	.620	1	.431	1.072
Christian	.091	.336	.074	1	.786	1.096
Other	.779	.268	8.432	1	.004	2.178
Regular exposure to media						
No (RC)						
Yes	.396	.073	29.236	1	.000	1.486
Birth Order of the last birth						
Fourth and above			62.143	3	.000	
3	.135	.102	1.771	1	.183	1.145
2	.336	.099	11.430	1	.001	1.400
1	.771	.108	50.931	1	.000	2.162
Age of woman at first union						
Less than 18 (RC)						
18 and above	.104	.080	1.706	1	.192	1.110
Any Pregnancy wastage before the last birth						
No (RC)						
Yes	.143	.084	2.892	1	.089	1.153
Household standard of living index						
Low (RC)			1.576	2	.455	
Medium	-.069	.071	.950	1	.330	.933
High	.023	.113	.040	1	.841	1.023
Any complication during pregnancy						
No (RC)						
Yes	.235	.066	12.538	1	.000	1.265
Desirability of the last birth						
Wanted then (RC)			4.899	2	.086	
Mistimed	.171	.087	3.830	1	.050	1.186
Unwanted	.135	.105	1.660	1	.198	1.144
Highest Educational Level of the woman						
Illiterate (RC)			45.893	2	.000	
Literate,<mid compete	.453	.081	31.399	1	.000	1.573
Mid complete and above	.581	.099	34.595	1	.000	1.787
Age of the woman						
20-29 (RC)			12.983	2	.002	
15-19	-.351	.101	12.159	1	.000	.704
30-49	.093	.092	1.031	1	.310	1.098
Place of Residence						
Rural (RC)						
Urban	.231	.081	8.221	1	.004	1.260
Constant	-1.980	.121	269.540	1	.000	.138

Total no. of women(unweighted) = 7651
Source: computed from unit records of NFHS-2 (1998-99) data file

Appendix 12

Logistic Regression Results for Postnatal care in Eastern-mid-Indian Tribal Belt

Model 2

Background Characteristics	B	S.E.	Wald	df	Sig.	Exp. (B)
Region						
Bihar (RC)			350.058	3	.000	
Madhya Pradesh	-.137	.091	2.292	1	.130	.872
Orissa	.694	.104	44.199	1	.000	2.002
West Bengal	1.432	.089	259.055	1	.000	4.186
Caste/Tribe						
Others (RC)			8.614	3	.035	
OBC	.043	.089	.233	1	.629	1.044
SC	.117	.092	1.634	1	.201	1.125
ST	-.229	.123	3.453	1	.063	.795
Religion						
Hindu (RC)			9.075	3	.028	
Muslim	-.109	.093	1.386	1	.239	.897
Christian	.269	.344	.610	1	.435	1.308
Other	.706	.269	6.896	1	.009	2.025
Regular exposure to media						
No (RC)						
Yes	.311	.076	16.755	1	.000	1.364
Birth Order of the last birth						
Fourth and above			34.727	3	.000	
3	-.010	.104	.010	1	.922	.990
2	.112	.103	1.176	1	.278	1.118
1	.513	.112	21.043	1	.000	1.671
Age of woman at first union						
Less than 18 (RC)						
18 and above	.041	.083	.246	1	.620	1.042
Any Pregnancy wastage before the last birth						
No (RC)						
Yes	.068	.087	.627	1	.429	1.071
Household standard of living index						
Low (RC)			16.224	2	.000	
Medium	.079	.073	1.161	1	.281	1.082
High	.466	.120	15.159	1	.000	1.593
Any complication during pregnancy						
No (RC)						
Yes	.358	.069	26.938	1	.000	1.431
Desirability of the last birth						
Wanted then (RC)			2.239	2	.326	
Mistimed	.069	.090	.590	1	.442	1.072
Unwanted	.148	.107	1.897	1	.168	1.159
Highest Educational Level of the woman						
Illiterate (RC)			26.342	2	.000	
Literate,<mid compete	.255	.084	9.285	1	.002	1.291
Mid complete and above	.515	.102	25.363	1	.000	1.674
Age of the woman						
20-29 (RC)			5.270	2	.072	
15-19	-.230	.104	4.866	1	.027	.794
30-49	.066	.094	.496	1	.481	1.068
Place of Residence						
Rural (RC)						
Urban	.278	.085	10.751	1	.001	1.320
Constant	-2.690	.136	389.032	1	.000	.068

Total no. of women (unweighted) = 7651
Source: computed from unit records of NFHS-2 (1998-99) data file

Appendix 13
Logistic Regression Results for Postnatal care in Eastern-mid-Indian Tribal Belt
Model 3

Background Characteristics	B	S.E.	Wald	df	Sig.	Exp. (B)
Caste/Tribe						
Others (RC)			50.199	3	.000	
OBC	-.476	.079	36.281	1	.000	.621
SC	-.017	.090	.035	1	.851	.983
ST	-.404	.120	11.347	1	.001	.668
Religion						
Hindu (RC)			10.849	3	.013	
Muslim	.223	.091	6.071	1	.014	1.250
Christian	.185	.345	.286	1	.593	1.203
Other	.611	.274	4.962	1	.026	1.841
Regular exposure to media						
No (RC)						
Yes	.256	.076	11.255	1	.001	1.291
Birth Order of the last birth						
Fourth and above			21.744	3	.000	
3	.030	.104	.083	1	.773	1.031
2	.181	.103	3.115	1	.078	1.199
1	.453	.113	16.105	1	.000	1.574
Age of woman at first union						
Less than 18 (RC)						
18 and above	.028	.083	.118	1	.731	1.029
Any Pregnancy wastage before the last birth						
No (RC)						
Yes	.047	.086	.291	1	.589	1.048
Household standard of living index						
Low (RC)			3.283	2	.194	
Medium	-.128	.074	3.022	1	.082	.880
High	-.155	.118	1.737	1	.188	.856
Any complication during pregnancy						
No (RC)						
Yes	.208	.068	9.272	1	.002	1.232
Desirability of the last birth						
Wanted then (RC)			5.720	2	.057	
Mistimed	.172	.090	3.616	1	.057	1.187
Unwanted	.182	.107	2.872	1	.090	1.200
Highest Educational Level of the woman						
Illiterate (RC)			11.207	2	.004	
Literate,<mid compete	.278	.084	10.839	1	.001	1.320
Mid complete and above	.211	.105	4.048	1	.044	1.235
Age of the woman						
20-29 (RC)			8.070	2	.018	
15-19	-.291	.104	7.749	1	.005	.748
30-49	.061	.094	.425	1	.514	1.063
Place of Residence						
Rural (RC)						
Urban	-.070	.085	.686	1	.408	.932
Received Full ANC						
No (RC)						
Yes	.906	.069	172.486	1	.000	2.474
Received Safe Delivery						
No (RC)						
Yes	.803	.071	127.808	1	.000	2.232
Constant	-2.254	.125	326.688	1	.000	.105

Total no. of women (unweighted) = 7651

Source: computed from unit records of NFHS-2 (1998-99) data file

Appendix 14

Logistic Regression Results for Postnatal care in Eastern-mid-Indian Tribal Belt

Model 4

Background Characteristics	B	S.E.	Wald	df	Sig.	Exp. (B)
Region						
Bihar (RC)			237.506	3	.000	
Madhya Pradesh	-.179	.092	3.739	1	.053	.836
Orissa	.502	.108	21.569	1	.000	1.653
West Bengal	1.192	.092	167.740	1	.000	3.295
Caste/Tribe						
Others (RC)			5.030	3	.170	
OBC	.075	.090	.695	1	.405	1.078
SC	.162	.094	2.976	1	.084	1.176
ST	-.072	.126	.328	1	.567	.930
Religion						
Hindu (RC)			5.131	3	.162	
Muslim	.063	.094	.447	1	.504	1.065
Christian	.317	.349	.824	1	.364	1.373
Other	.562	.278	4.094	1	.043	1.754
Regular exposure to media						
No (RC)						
Yes	.226	.078	8.350	1	.004	1.253
Birth Order of the last birth						
Fourth and above			12.258	3	.007	
3	-.081	.106	.579	1	.447	.923
2	.004	.105	.001	1	.969	1.004
1	.257	.116	4.900	1	.027	1.293
Age of woman at first union						
Less than 18 (RC)						
18 and above	-.015	.085	.031	1	.861	.985
Any Pregnancy wastage before the last birth						
No (RC)						
Yes	.004	.088	.002	1	.965	1.004
Household standard of living index						
Low (RC)			5.032	2	.081	
Medium	.010	.076	.017	1	.897	1.010
High	.244	.123	3.953	1	.047	1.277
Any complication during pregnancy						
No (RC)						
Yes	.326	.071	21.284	1	.000	1.385
Desirability of the last birth						
Wanted then (RC)			3.022	2	.221	
Mistimed	.083	.092	.807	1	.369	1.086
Unwanted	.174	.109	2.554	1	.110	1.191
Highest Educational Level of the woman						
Illiterate (RC)			5.350	2	.069	
Literate,<mid compete	.154	.086	3.214	1	.073	1.167
Mid complete and above	.224	.107	4.380	1	.036	1.251
Age of the woman						
20-29 (RC)			3.540	2	.170	
15-19	-.198	.107	3.416	1	.065	.820
30-49	.039	.095	.168	1	.682	1.040
Place of Residence						
Rural (RC)						
Urban	.011	.088	.015	1	.904	1.011
Received Full ANC						
No (RC)						
Yes	.681	.072	89.574	1	.000	1.977
Received Safe Delivery						
No (RC)						
Yes	.761	.073	109.962	1	.000	2.141
Constant	-2.802	.139	407.750	1	.000	.061

Total no. of women (unweighted) = 7651

Source: computed from unit records of NFHS-2 (1998-99) data file

Appendix 15
Logistic Regression Results for Full ANC in Bihar

Background Characteristics	B	S.E.	Wald	df	Sig.	Exp. (B)
Caste/Tribe						
Others (RC)			4.136	3	.247	
OBC	-.289	.173	2.814	1	.093	.749
SC	-.445	.241	3.418	1	.065	.641
ST	-.338	.374	.813	1	.367	.714
Religion						
Hindu (RC)			10.220	3	.017	
Muslim	-.181	.210	.746	1	.388	.834
Christian	.220	.753	.085	1	.770	1.246
Other	2.002	.657	9.271	1	.002	7.403
Regular exposure to media						
No (RC)						
Yes	.716	.178	16.110	1	.000	2.046
Birth Order of the last birth						
Fourth and above			5.469	3	.141	
3	.335	.240	1.941	1	.164	1.397
2	.515	.237	4.735	1	.030	1.674
1	.548	.261	4.412	1	.036	1.730
Age of woman at first union						
Less than 18 (RC)						
18 and above	.025	.185	.019	1	.891	1.026
Any Pregnancy wastage before the last birth						
No (RC)						
Yes	.116	.216	.289	1	.591	1.123
Household standard of living index						
Low (RC)			33.747	2	.000	
Medium	.703	.185	14.499	1	.000	2.021
High	1.480	.255	33.727	1	.000	4.393
Any complication during pregnancy						
No (RC)						
Yes	.370	.164	5.099	1	.024	1.448
Desirability of the last birth						
Wanted then (RC)			6.308	2	.043	
Mistimed	.328	.200	2.683	1	.101	1.388
Unwanted	-.430	.264	2.651	1	.103	.650
Highest Educational Level of the woman						
Illiterate (RC)			20.463	2	.000	
Literate,<mid compete	.402	.216	3.460	1	.063	1.495
Mid complete and above	.929	.206	20.386	1	.000	2.532
Age of the woman						
20-29 (RC)			.883	2	.643	
15-19	.201	.230	.759	1	.384	1.222
30-49	.082	.236	.122	1	.727	1.086
Place of Residence						
Rural (RC)						
Urban	1.109	.189	34.540	1	.000	3.030
Constant	-3.725	.313	141.520	1	.000	.024

Total no. of women (unweighted) = 2640
Source: computed from unit records of NFHS-2 (1998-99) data file

Appendix 16
Logistic Regression Results for Safe Delivery in Bihar

Background Characteristics	B	S.E.	Wald	df	Sig.	Exp. (B)
Caste/Tribe						
Others (RC)			20.741	3	.000	
OBC	-.178	.148	1.446	1	.229	.837
SC	-.348	.186	3.513	1	.061	.706
ST	-1.716	.386	19.779	1	.000	.180
Religion						
Hindu (RC)			14.672	3	.002	
Muslim	-.556	.161	11.884	1	.001	.573
Christian	1.173	.729	2.586	1	.108	3.232
Other	-.489	.892	.300	1	.584	.613
Regular exposure to media						
No (RC)						
Yes	.529	.138	14.778	1	.000	1.697
Birth Order of the last birth						
Fourth and above			40.745	3	.000	
3	.164	.180	.828	1	.363	1.178
2	.201	.179	1.260	1	.262	1.223
1	1.058	.192	30.296	1	.000	2.881
Age of woman at first union						
Less than 18 (RC)						
18 and above	.037	.153	.057	1	.811	1.037
Any Pregnancy wastage before the last birth						
No (RC)						
Yes	.208	.161	1.669	1	.196	1.231
Household standard of living index						
Low (RC)			22.124	2	.000	
Medium	.207	.128	2.603	1	.107	1.230
High	1.051	.225	21.756	1	.000	2.860
Any complication during pregnancy						
No (RC)						
Yes	.161	.122	1.737	1	.188	1.174
Desirability of the last birth						
Wanted then (RC)			1.164	2	.559	
Mistimed	-.075	.173	.189	1	.664	.927
Unwanted	.158	.175	.822	1	.365	1.171
Highest Educational Level of the woman						
Illiterate (RC)			13.891	2	.001	
Literate,<mid compete	.438	.172	6.479	1	.011	1.549
Mid complete and above	.609	.176	11.943	1	.001	1.839
Age of the woman						
20-29 (RC)			4.190	2	.123	
15-19	-.364	.182	4.016	1	.045	.695
30-49	.075	.168	.200	1	.655	1.078
Place of Residence						
Rural (RC)						
Urban	.703	.177	15.833	1	.000	2.019
Received Full ANC						
No (RC)						
Yes	1.382	.156	78.651	1	.000	3.982
Constant	-2.131	.229	86.764	1	.000	.119

Total no. of women (unweighted) = 2640

Source: computed from unit records of NFHS-2 (1998-99) data file

Appendix 17
Logistic Regression Results for Postnatal Care for Bihar (Model 1)

Background Characteristics	B	S.E.	Wald	df	Sig.	Exp. (B)
Caste/Tribe						
Others (RC)			1.280	3	.734	
OBC	-.058	.162	.129	1	.720	.944
SC	-.069	.205	.112	1	.738	.934
ST	-.361	.321	1.264	1	.261	.697
Religion						
Hindu (RC)			2.415	3	.491	
Muslim	-.194	.178	1.188	1	.276	.824
Christian	-.173	.790	.048	1	.827	.841
Other	.710	.685	1.073	1	.300	2.034
Regular exposure to media						
No (RC)						
Yes	.364	.162	5.065	1	.024	1.439
Birth Order of the last birth						
Fourth and above			2.533	3	.469	
3	.160	.194	.680	1	.410	1.173
2	.079	.197	.163	1	.686	1.083
1	.313	.217	2.078	1	.149	1.367
Age of woman at first union						
Less than 18 (RC)						
18 and above	.006	.169	.001	1	.972	1.006
Any Pregnancy wastage before the last birth						
No (RC)						
Yes	-.126	.188	.455	1	.500	.881
Household standard of living index						
Low (RC)			14.678	2	.001	
Medium	.264	.149	3.135	1	.077	1.302
High	.903	.236	14.571	1	.000	2.466
Any complication during pregnancy						
No (RC)						
Yes	.582	.149	15.317	1	.000	1.790
Desirability of the last birth						
Wanted then (RC)			4.711	2	.095	
Mistimed	.369	.175	4.465	1	.035	1.447
Unwanted	.166	.193	.739	1	.390	1.180
Highest Educational Level of the woman						
Illiterate (RC)			4.525	2	.104	
Literate,<mid compete	.245	.200	1.498	1	.221	1.278
Mid complete and above	.417	.200	4.349	1	.037	1.518
Age of the woman						
20-29 (RC)			.232	2	.890	
15-19	-.100	.212	.225	1	.635	.904
30-49	-.015	.185	.006	1	.936	.985
Place of Residence						
Rural (RC)						
Urban	.005	.198	.001	1	.981	1.005
Constant	-2.831	.260	118.664	1	.000	.059

Total no. of women (unweighted) = 2640

Source: computed from unit records of NFHS-2 (1998-99) data file

Appendix 18
Logistic Regression Results for Postnatal Care in Bihar (Model 2)

Background Characteristics	B	S.E.	Wald	df	Sig.	Exp. (B)
Caste/Tribe						
Others (RC)			.548	3	.908	
OBC	.025	.166	.022	1	.882	1.025
SC	.050	.210	.056	1	.813	1.051
ST	-.175	.327	.286	1	.593	.840
Religion						
Hindu (RC)			.886	3	.829	
Muslim	-.103	.180	.324	1	.569	.902
Christian	-.310	.819	.144	1	.705	.733
Other	.426	.718	.352	1	.553	1.531
Regular exposure to media						
No (RC)						
Yes	.188	.168	1.242	1	.265	1.206
Birth Order of the last birth						
Fourth and above			.779	3	.854	
3	.128	.198	.418	1	.518	1.136
2	.019	.200	.009	1	.926	1.019
1	.136	.223	.372	1	.542	1.146
Age of woman at first union						
Less than 18 (RC)						
18 and above	-.019	.175	.012	1	.913	.981
Any Pregnancy wastage before the last birth						
No (RC)						
Yes	-.176	.191	.841	1	.359	.839
Household standard of living index						
Low (RC)			5.273	2	.072	
Medium	.192	.153	1.587	1	.208	1.212
High	.570	.248	5.272	1	.022	1.769
Any complication during pregnancy						
No (RC)						
Yes	.551	.151	13.226	1	.000	1.734
Desirability of the last birth						
Wanted then (RC)			4.186	2	.123	
Mistimed	.341	.179	3.643	1	.056	1.406
Unwanted	.206	.196	1.104	1	.293	1.229
Highest Educational Level of the woman						
Illiterate (RC)			.855	2	.652	
Literate,<mid compete	.155	.205	.568	1	.451	1.168
Mid complete and above	.166	.209	.628	1	.428	1.180
Age of the woman						
20-29 (RC)			.142	2	.932	
15-19	-.071	.217	.107	1	.744	.932
30-49	-.035	.188	.034	1	.854	.966
Place of Residence						
Rural (RC)						
Urban	-.274	.205	1.785	1	.182	.760
Received Full ANC						
No (RC)						
Yes	.924	.167	30.562	1	.000	2.520
Received Safe Delivery						
No (RC)						
Yes	.674	.145	21.729	1	.000	1.962
Constant	-2.993	.267	126.022	1	.000	.050

Total no. of women (unweighted) = 2640

Source: computed from unit records of NFHS-2 (1998-99) data file

Appendix 19
Logistic Regression Results for Full ANC in Madhya Pradesh

Background Characteristics	B	S.E.	Wald	df	Sig.	Exp. (B)
Caste/Tribe						
Others (RC)			12.939	3	.005	
OBC	.175	.148	1.390	1	.238	1.191
SC	.017	.194	.008	1	.930	1.017
ST	-.437	.204	4.596	1	.032	.646
Religion						
Hindu (RC)			10.146	3	.017	
Muslim	.546	.207	6.956	1	.008	1.726
Christian	-2.274	1.288	3.115	1	.078	.103
Other	-.113	.441	.066	1	.798	.893
Regular exposure to media						
No (RC)						
Yes	.461	.135	11.657	1	.001	1.585
Birth Order of the last birth						
Fourth and above			8.025	3	.045	
3	.214	.180	1.411	1	.235	1.238
2	.368	.181	4.128	1	.042	1.446
1	.566	.203	7.798	1	.005	1.760
Age of woman at first union						
Less than 18 (RC)						
18 and above	.112	.159	.499	1	.480	1.119
Any Pregnancy wastage before the last birth						
No (RC)						
Yes	.395	.155	6.514	1	.011	1.484
Household standard of living index						
Low (RC)			16.963	2	.000	
Medium	.387	.138	7.818	1	.005	1.473
High	.756	.184	16.781	1	.000	2.129
Any complication during pregnancy						
No (RC)						
Yes	.473	.132	12.874	1	.000	1.604
Desirability of the last birth						
Wanted then (RC)			6.454	2	.040	
Mistimed	-.428	.190	5.039	1	.025	.652
Unwanted	-.266	.188	1.995	1	.158	.767
Highest Educational Level of the woman						
Illiterate (RC)			62.249	2	.000	
Literate,<mid compete	.647	.145	19.988	1	.000	1.909
Mid complete and above	1.358	.175	60.057	1	.000	3.889
Age of the woman						
20-29 (RC)			1.166	2	.558	
15-19	-.107	.180	.350	1	.554	.899
30-49	.159	.171	.863	1	.353	1.172
Place of Residence						
Rural (RC)						
Urban	.505	.133	14.426	1	.000	1.658
Constant	-3.109	.248	156.612	1	.000	.045

Total no. of women (unweighted) = 2520
Source: computed from unit records of NFHS-2 (1998-99) data file

Appendix 20
Logistic Regression for Safe delivery in Madhya Pradesh

Background Characteristics	B	S.E.	Wald	df	Sig.	Exp. (B)
Caste/Tribe						
Others (RC)			6.778	3	.079	
OBC	-.058	.152	.146	1	.702	.944
SC	.010	.189	.003	1	.957	1.010
ST	-.407	.193	4.467	1	.035	.665
Religion						
Hindu (RC)			4.132	3	.248	
Muslim	.315	.217	2.096	1	.148	1.370
Christian	-.150	.610	.061	1	.806	.861
Other	.803	.548	2.153	1	.142	2.233
Regular exposure to media						
No (RC)						
Yes	.457	.125	13.283	1	.000	1.580
Birth Order of the last birth						
Fourth and above			50.588	3	.000	
3	.565	.173	10.715	1	.001	1.760
2	.445	.180	6.121	1	.013	1.561
1	1.342	.199	45.359	1	.000	3.828
Age of woman at first union						
Less than 18 (RC)						
18 and above	.243	.161	2.276	1	.131	1.274
Any Pregnancy wastage before the last birth						
No (RC)						
Yes	.355	.153	5.349	1	.021	1.426
Household standard of living index						
Low (RC)			26.006	2	.000	
Medium	.094	.126	.554	1	.457	1.098
High	.858	.183	22.055	1	.000	2.358
Any complication during pregnancy						
No (RC)						
Yes	.364	.127	8.206	1	.004	1.440
Desirability of the last birth						
Wanted then (RC)			.233	2	.890	
Mistimed	.051	.187	.076	1	.783	1.053
Unwanted	-.066	.180	.134	1	.715	.936
Highest Educational Level of the woman						
Illiterate (RC)			26.780	2	.000	
Literate,<mid compete	.314	.142	4.899	1	.027	1.368
Mid complete and above	.938	.182	26.527	1	.000	2.554
Age of the woman						
20-29 (RC)			4.394	2	.111	
15-19	-.291	.174	2.788	1	.095	.747
30-49	.223	.169	1.740	1	.187	1.250
Place of Residence						
Rural (RC)						
Urban	1.149	.132	75.242	1	.000	3.154
Received Full ANC						
No (RC)						
Yes	.782	.127	38.192	1	.000	2.186
Constant	-2.867	.241	141.519	1	.000	.057

Total no. of women (unweighted) = 2520
Source: computed from unit records of NFHS-2 (1998-99) data file

Appendix 21
Logistic Regression Results for Postnatal Care in Madhya Pradesh (Model 1)

Background Characteristics	B	S.E.	Wald	df	Sig.	Exp. (B)
Caste/Tribe						
Others (RC)			.901	3	.825	
OBC	-.073	.165	.194	1	.659	.930
SC	-.131	.216	.364	1	.546	.878
ST	-.199	.217	.838	1	.360	.820
Religion						
Hindu (RC)			2.440	3	.486	
Muslim	.214	.225	.902	1	.342	1.239
Christian	-.007	.695	.000	1	.992	.993
Other	.582	.444	1.716	1	.190	1.789
Regular exposure to media						
No (RC)						
Yes	.158	.153	1.062	1	.303	1.171
Birth Order of the last birth						
Fourth and above			8.920	3	.030	
3	.066	.198	.113	1	.737	1.069
2	-.111	.208	.285	1	.594	.895
1	.428	.222	3.707	1	.054	1.534
Age of woman at first union						
Less than 18 (RC)						
18 and above	.240	.174	1.906	1	.167	1.272
Any Pregnancy wastage before the last birth						
No (RC)						
Yes	.232	.171	1.854	1	.173	1.262
Household standard of living index						
Low (RC)			1.514	2	.469	
Medium	.081	.150	.289	1	.591	1.084
High	.254	.209	1.477	1	.224	1.289
Any complication during pregnancy						
No (RC)						
Yes	.403	.150	7.229	1	.007	1.496
Desirability of the last birth						
Wanted then (RC)			.244	2	.885	
Mistimed	.069	.204	.115	1	.734	1.072
Unwanted	.077	.197	.155	1	.694	1.080
Highest Educational Level of the woman						
Illiterate (RC)			6.581	2	.037	
Literate,<mid compete	.340	.170	4.002	1	.045	1.405
Mid complete and above	.472	.206	5.237	1	.022	1.603
Age of the woman						
20-29 (RC)			.428	2	.807	
15-19	.021	.205	.010	1	.919	1.021
30-49	.116	.181	.410	1	.522	1.123
Place of Residence						
Rural (RC)						
Urban	.686	.148	21.393	1	.000	1.986
Constant	-2.846	.268	112.759	1	.000	.058

Total no. of women (unweighted) = 2520

Source: computed from unit records of NFHS-2 (1998-99) data file

Appendix 22
Logistic Regression Results for Postnatal Care – Madhya Pradesh (Model 2)

Background Characteristics	B	S.E.	Wald	df	Sig.	Exp. (B)
Caste/Tribe						
Others (RC)			.554	3	.907	
OBC	-.107	.168	.408	1	.523	.898
SC	-.146	.219	.442	1	.506	.864
ST	-.115	.220	.273	1	.601	.891
Religion						
Hindu (RC)			1.544	3	.672	
Muslim	.081	.229	.124	1	.725	1.084
Christian	.222	.702	.100	1	.751	1.249
Other	.537	.457	1.379	1	.240	1.710
Regular exposure to media						
No (RC)						
Yes	.034	.158	.045	1	.832	1.034
Birth Order of the last birth						
Fourth and above			5.545	3	.136	
3	.000	.201	.000	1	1.000	1.000
2	-.226	.214	1.116	1	.291	.798
1	.217	.230	.888	1	.346	1.242
Age of woman at first union						
Less than 18 (RC)						
18 and above	.201	.178	1.274	1	.259	1.222
Any Pregnancy wastage before the last birth						
No (RC)						
Yes	.122	.174	.486	1	.486	1.129
Household standard of living index						
Low (RC)			.031	2	.985	
Medium	.012	.153	.006	1	.937	1.012
High	.037	.215	.030	1	.862	1.038
Any complication during pregnancy						
No (RC)						
Yes	.289	.153	3.592	1	.058	1.335
Desirability of the last birth						
Wanted then (RC)			.733	2	.693	
Mistimed	.132	.208	.405	1	.525	1.142
Unwanted	.128	.200	.408	1	.523	1.136
Highest Educational Level of the woman						
Illiterate (RC)			1.056	2	.590	
Literate,<mid compete	.181	.176	1.055	1	.304	1.198
Mid complete and above	.091	.217	.177	1	.674	1.096
Age of the woman						
20-29 (RC)			.205	2	.903	
15-19	.048	.211	.052	1	.819	1.049
30-49	.070	.184	.143	1	.705	1.072
Place of Residence						
Rural (RC)						
Urban	.488	.154	10.077	1	.002	1.629
Received Full ANC						
No (RC)						
Yes	.844	.144	34.570	1	.000	2.325
Received Safe Delivery						
No (RC)						
Yes	.620	.150	17.182	1	.000	1.860
Constant	-2.835	.270	110.284	1	.000	.059

Total no. of women (unweighted) = 2520

Source: computed from unit records of NFHS-2 (1998-99) data file

Appendix 23
Logistic Regression Results for Full ANC in Orissa

Background Characteristics	B	S.E.	Wald	df	Sig.	Exp. (B)
Caste/Tribe						
Others (RC)			14.847	3	.002	
OBC	.024	.165	.021	1	.884	1.024
SC	-.092	.188	.242	1	.623	.912
ST	-.646	.207	9.719	1	.002	.524
Religion						
Hindu (RC)			.865	2	.649	
Muslim	-.369	.457	.652	1	.419	.691
Christian	.191	.437	.191	1	.662	1.211
Other						
Regular exposure to media						
No (RC)						
Yes	.274	.149	3.400	1	.065	1.315
Birth Order of the last birth						
Fourth and above			17.244	3	.001	
3	.345	.192	3.220	1	.073	1.413
2	.224	.193	1.340	1	.247	1.251
1	.803	.213	14.216	1	.000	2.232
Age of woman at first union						
Less than 18 (RC)						
18 and above	-.175	.150	1.361	1	.243	.840
Any Pregnancy wastage before the last birth						
No (RC)						
Yes	.311	.156	4.003	1	.045	1.365
Household standard of living index						
Low (RC)			11.770	2	.003	
Medium	.048	.149	.102	1	.749	1.049
High	.928	.286	10.550	1	.001	2.530
Any complication during pregnancy						
No (RC)						
Yes	.072	.131	.305	1	.581	1.075
Desirability of the last birth						
Wanted then (RC)			5.879	2	.053	
Mistimed	-.473	.197	5.757	1	.016	.623
Unwanted	-.157	.288	.298	1	.585	.855
Highest Educational Level of the woman						
Illiterate (RC)			18.085	2	.000	
Literate,<mid compete	.284	.162	3.061	1	.080	1.328
Mid complete and above	.905	.213	18.041	1	.000	2.473
Age of the woman						
20-29 (RC)			7.541	2	.023	
15-19	-.626	.235	7.097	1	.008	.535
30-49	-.105	.173	.369	1	.543	.900
Place of Residence						
Rural (RC)						
Urban	.006	.206	.001	1	.977	1.006
Constant	-.926	.236	15.351	1	.000	.396

Total no. of women (unweighted) = 1361
Source: computed from unit records of NFHS-2 (1998-99) data file

Appendix 24
Logistic Regression Results for Safe delivery in Orissa

Background Characteristics	B	S.E.	Wald	df	Sig.	Exp. (B)
Caste/Tribe						
Others (RC)			11.018	3	.012	
OBC	-.228	.178	1.639	1	.200	.796
SC	-.358	.207	2.994	1	.084	.699
ST	-.783	.238	10.778	1	.001	.457
Religion						
Hindu (RC)			3.233	2	.199	
Muslim	-.887	.512	2.995	1	.084	.412
Christian	.208	.481	.187	1	.665	1.231
Regular exposure to media						
No (RC)						
Yes	.152	.166	.840	1	.359	1.164
Birth Order of the last birth						
Fourth and above			49.069	3	.000	
3	-.151	.225	.451	1	.502	.860
2	.021	.223	.009	1	.926	1.021
1	1.152	.238	23.384	1	.000	3.163
Age of woman at first union						
Less than 18 (RC)						
18 and above	.297	.161	3.422	1	.064	1.346
Any Pregnancy wastage before the last birth						
No (RC)						
Yes	-.076	.179	.178	1	.673	.927
Household standard of living index						
Low (RC)			10.139	2	.006	
Medium	.428	.163	6.861	1	.009	1.534
High	.830	.303	7.521	1	.006	2.294
Any complication during pregnancy						
No (RC)						
Yes	-.026	.148	.030	1	.862	.975
Desirability of the last birth						
Wanted then (RC)			.343	2	.842	
Mistimed	-.031	.215	.020	1	.887	.970
Unwanted	-.188	.326	.335	1	.563	.828
Highest Educational Level of the woman						
Illiterate (RC)			13.632	2	.001	
Literate,<mid compete	.317	.177	3.190	1	.074	1.373
Mid complete and above	.840	.228	13.631	1	.000	2.317
Age of the woman						
20-29 (RC)			6.136	2	.047	
15-19	-.440	.261	2.837	1	.092	.644
30-49	.358	.193	3.424	1	.064	1.430
Place of Residence						
Rural (RC)						
Urban	1.170	.225	26.965	1	.000	3.221
Recived Full ANC						
No (RC)						
yes	.715	.138	26.765	1	.000	2.043
Constant	-1.765	.272	42.240	1	.000	.171

Total no. of women (unweighted) = 1361
Source: computed from unit records of NFHS-2 (1998-99) data file

Appendix 25
Logistic Regression Results for Postnantal Care in Orissa (Model 1)

Background Characteristics	B	S.E.	Wald	df	Sig.	Exp. (B)
Caste/Tribe						
Others (RC)			4.567	3	.206	
OBC	.083	.176	.223	1	.637	1.087
SC	.004	.206	.000	1	.983	1.004
ST	-.346	.231	2.250	1	.134	.707
Religion						
Hindu (RC)			9.599	2	.008	
Muslim	-.301	.524	.331	1	.565	.740
Christian	1.258	.416	9.157	1	.002	3.517
Regular exposure to media						
No (RC)						
Yes	.133	.167	.636	1	.425	1.142
Birth Order of the last birth						
Fourth and above			6.583	3	.086	
3	-.341	.222	2.364	1	.124	.711
2	-.062	.212	.087	1	.768	.939
1	.194	.230	.713	1	.398	1.214
Age of woman at first union						
Less than 18 (RC)						
18 and above	.169	.161	1.101	1	.294	1.184
Any Pregnancy wastage before the last birth						
No (RC)						
Yes	.293	.168	3.035	1	.081	1.341
Household standard of living index						
Low (RC)			6.272	2	.043	
Medium	-.020	.167	.014	1	.907	.981
High	.582	.274	4.513	1	.034	1.790
Any complication during pregnancy						
No (RC)						
Yes	-.022	.142	.024	1	.876	.978
Desirability of the last birth						
Wanted then (RC)			.405	2	.817	
Mistimed	.085	.203	.175	1	.676	1.088
Unwanted	.162	.315	.265	1	.607	1.176
Highest Educational Level of the woman						
Illiterate (RC)			4.503	2	.105	
Literate,<mid compete	.073	.184	.157	1	.692	1.076
Mid complete and above	.453	.226	4.017	1	.045	1.573
Age of the woman						
20-29 (RC)			6.084	2	.048	
15-19	-.304	.258	1.384	1	.239	.738
30-49	-.417	.195	4.572	1	.032	.659
Place of Residence						
Rural (RC)						
Urban	-.015	.215	.005	1	.945	.985
Constant	-1.292	.258	25.150	1	.000	.275

Total no. of women (unweighted) = 1361
Source: computed from unit records of NFHS-2 (1998-99) data file

Appendix 26
Logistic Regression Results for Postnantal Care in Orissa (Model 2)

Background Characteristics	B	S.E.	Wald	df	Sig	Exp. (B)
Caste/Tribe						
Others (RC)			1.402	3	.705	
OBC	.121	.184	.431	1	.511	1.128
SC	.087	.215	.163	1	.687	1.090
ST	-.104	.241	.186	1	.666	.901
Religion						
Hindu (RC)			8.677	2	.013	
Muslim	-.100	.544	.033	1	.855	.905
Christian	1.274	.435	8.603	1	.003	3.577
Regular exposure to media						
No (RC)						
Yes	.049	.173	.080	1	.778	1.050
Birth Order of the last birth						
Fourth and above			3.542	3	.315	
3	-.414	.230	3.243	1	.072	.661
2	-.118	.219	.291	1	.590	.889
1	-.189	.244	.602	1	.438	.827
Age of woman at first union						
Less than 18 (RC)						
18 and above	.152	.169	.808	1	.369	1.164
Any Pregnancy wastage before the last birth						
No (RC)						
Yes	.255	.175	2.124	1	.145	1.291
Household standard of living index						
Low (RC)			2.769	2	.250	
Medium	-.122	.176	.484	1	.487	.885
High	.277	.287	.931	1	.335	1.320
Any complication during pregnancy						
No (RC)						
Yes	-.034	.147	.054	1	.816	.966
Desirability of the last birth						
Wanted then (RC)			1.357	2	.507	
Mistimed	.206	.211	.959	1	.327	1.229
Unwanted	.235	.327	.516	1	.472	1.264
Highest Educational Level of the woman						
Illiterate (RC)			.714	2	.700	
Literate,<mid compete	-.069	.193	.129	1	.719	.933
Mid complete and above	.114	.239	.228	1	.633	1.121
Age of the woman						
20-29 (RC)			5.479	2	.065	
15-19	-.110	.268	.169	1	.681	.896
30-49	-.462	.202	5.250	1	.022	.630
Place of Residence						
Rural (RC)						
Urban	-.224	.226	.983	1	.321	.799
Received Full ANC						
No (RC)						
Yes	.880	.144	37.589	1	.000	2.411
Received Safe Delivery						
No (RC)						
Yes	.939	.154	37.017	1	.000	2.559
Constant	-1.808	.275	43.069	1	.000	.164

Total no. of women (unweighted) = 1361
Source: computed from unit records of NFHS-2 (1998-99) data file

Appendix 27
Logistic Regression Results for full ANC in West Bengal

Background Characteristics	B	S.E	Wald	df	Sig.	Exp. (B)
Caste/Tribe						
Others (RC)			5.501	3	.139	
OBC	-.841	.377	4.975	1	.026	.431
SC	-.119	.178	.445	1	.505	.888
ST	-.270	.294	.843	1	.359	.763
Religion						
Hindu (RC)			14.191	3	.003	
Muslim	-.639	.178	12.917	1	.000	.528
Christian	.065	1.494	.002	1	.965	1.067
Other	.538	.538	1.000	1	.317	1.712
Regular exposure to media						
No (RC)						
Yes	.349	.154	5.133	1	.023	1.418
Birth Order of the last birth						
Fourth and above			5.191	3	.158	
3	.383	.245	2.445	1	.118	1.467
2	.543	.243	4.999	1	.025	1.722
1	.529	.269	3.859	1	.049	1.697
Age of woman at first union						
Less than 18 (RC)						
18 and above	.355	.186	3.645	1	.056	1.426
Any Pregnancy wastage before the last birth						
No (RC)						
Yes	.271	.192	1.989	1	.158	1.311
Household standard of living index						
Low (RC)			.853	2	.653	
Medium	.026	.156	.028	1	.867	1.027
High	-.254	.325	.611	1	.435	.775
Any complication during pregnancy						
No (RC)						
Yes	.078	.145	.292	1	.589	1.082
Desirability of the last birth						
Wanted then (RC)			2.040	2	.361	
Mistimed	-.068	.180	.144	1	.705	.934
Unwanted	-.377	.266	2.014	1	.156	.686
Highest Educational Level of the woman						
Illiterate (RC)			32.655	2	.000	
Literate,<mid compete	.436	.161	7.311	1	.007	1.547
Mid complete and above	1.412	.248	32.395	1	.000	4.104
Age of the woman						
20-29 (RC)			.199	2	.905	
15-19	-.095	.216	.194	1	.660	.909
30-49	-.014	.230	.004	1	.952	.986
Place of Residence						
Rural (RC)						
Urban	.975	.207	22.230	1	.000	2.651
Constant	-1.111	.277	16.048	1	.000	.329

Total no. of women (unweighted) = 1130
Source: computed from unit records of NFHS-2 (1998-99) data file

Appendix 28
Logistic Regression Results for Safe Delivery in west Bengal

Background Characteristics	B	S.E.	Wald	df	Sig.	Exp. (B)
Caste/Tribe						
Others (RC)			11.912	3	.008	
OBC	-.250	.431	.338	1	.561	.778
SC	-.351	.193	3.294	1	.070	.704
ST	-1.164	.351	10.994	1	.001	.312
Religion						
Hindu (RC)			53.088	3	.000	
Muslim	-1.409	.203	48.088	1	.000	.244
Christian	-2.797	1.453	3.707	1	.054	.061
Other	.774	.585	1.751	1	.186	2.169
Regular exposure to media						
No (RC)						
Yes	-.328	.177	3.450	1	.063	.720
Birth Order of the last birth						
Fourth and above			65.287	3	.000	
3	.675	.292	5.325	1	.021	1.963
2	.844	.297	8.069	1	.005	2.326
1	2.218	.324	46.969	1	.000	9.188
Age of woman at first union						
Less than 18 (RC)						
18 and above	.321	.206	2.425	1	.119	1.378
Any Pregnancy wastage before the last birth						
No (RC)						
Yes	.322	.217	2.216	1	.137	1.381
Household standard of living index						
Low (RC)			9.835	2	.007	
Medium	.434	.174	6.240	1	.012	1.543
High	.999	.385	6.733	1	.009	2.714
Any complication during pregnancy						
No (RC)						
Yes	.033	.166	.039	1	.843	1.033
Desirability of the last birth						
Wanted then (RC)			3.797	2	.150	
Mistimed	.106	.205	.267	1	.606	1.112
Unwanted	.560	.289	3.759	1	.053	1.751
Highest Educational Level of the woman						
Illiterate (RC)			11.378	2	.003	
Literate,<mid compete	.069	.182	.145	1	.703	1.072
Mid complete and above	.896	.277	10.445	1	.001	2.449
Age of the woman						
20-29 (RC)			.738	2	.691	
15-19	.088	.236	.139	1	.709	1.092
30-49	.206	.268	.591	1	.442	1.229
Place of Residence						
Rural (RC)						
Urban	1.506	.245	37.823	1	.000	4.507
Received full ANC						
No(RC)						
Yes	.743	.158	22.145	1	.000	2.103
Constant	-1.855	.334	30.791	1	.000	.157

Total no. of women (unweighted) = 1361
Source: computed from unit records of NFHS-2 (1998-99) data file

Appendix 29
Logistic Regression Results for Postnatal Care in West Bengal (Model 1)

Background Characteristics	B	S.E.	Wald	df	Sig.	Exp. (B)
Caste/Tribe						
Others (RC)			6.063	3	.109	
OBC	.037	.342	.011	1	.915	1.037
SC	.308	.171	3.233	1	.072	1.361
ST	-.335	.303	1.225	1	.268	.715
Religion						
Hindu (RC)			4.138	3	.247	
Muslim	-.116	.172	.454	1	.500	.891
Christian	-1.073	1.362	.621	1	.431	.342
Other	.906	.526	2.971	1	.085	2.475
Regular exposure to media						
No (RC)						
Yes	.383	.151	6.412	1	.011	1.467
Birth Order of the last birth						
Fourth and above			20.860	3	.000	
3	-.066	.238	.078	1	.780	.936
2	.304	.232	1.709	1	.191	1.355
1	.859	.256	11.300	1	.001	2.362
Age of woman at first union						
Less than 18 (RC)						
18 and above	-.080	.175	.206	1	.650	.924
Any Pregnancy wastage before the last birth						
No (RC)						
Yes	-.026	.181	.021	1	.886	.974
Household standard of living index						
Low (RC)			.839	2	.657	
Medium	-.050	.153	.107	1	.744	.951
High	.176	.283	.388	1	.533	1.193
Any complication during pregnancy						
No (RC)						
Yes	.352	.137	6.580	1	.010	1.423
Desirability of the last birth						
Wanted then (RC)			1.045	2	.593	
Mistimed	-.100	.173	.332	1	.565	.905
Unwanted	.180	.241	.557	1	.455	1.197
Highest Educational Level of the woman						
Illiterate (RC)			6.720	2	.035	
Literate,<mid compete	.294	.158	3.444	1	.063	1.342
Mid complete and above	.545	.224	5.942	1	.015	1.725
Age of the woman						
20-29 (RC)			6.500	2	.039	
15-19	-.427	.213	4.045	1	.044	.652
30-49	.342	.208	2.704	1	.100	1.408
Place of Residence						
Rural (RC)						
Urban	.175	.182	.923	1	.337	1.191
Constant	-1.369	.268	26.103	1	.000	.254

Total no. of women (unweighted) = 1361
Source: computed from unit records of NFHS-2 (1998-99) data file

Appendix 30
Logistic Regression Results for Postnatal Care in West Bengal (Model 1)

Variables in the Equation	B	S.E.	Wald	df	Sig.	Exp. (B)
Caste/Tribe						
Others (RC)			5.819	3	.121	
OBC	.146	.348	.176	1	.675	1.157
SC	.380	.176	4.636	1	.031	1.462
ST	-.129	.310	.174	1	.677	.879
Religion						
Hindu (RC)			3.166	3	.367	
Muslim	.173	.182	.902	1	.342	1.188
Christian	-.776	1.344	.334	1	.563	.460
Other	.743	.538	1.904	1	.168	2.101
Regular exposure to media						
No (RC)						
Yes	.406	.155	6.816	1	.009	1.501
Birth Order of the last birth						
Fourth and above			10.589	3	.014	
3	-.180	.243	.549	1	.459	.835
2	.144	.239	.365	1	.546	1.155
1	.536	.266	4.047	1	.044	1.709
Age of woman at first union						
Less than 18 (RC)						
18 and above	-.154	.180	.731	1	.393	.858
Any Pregnancy wastage before the last birth						
No (RC)						
Yes	-.088	.185	.228	1	.633	.915
Household standard of living index						
Low (RC)			1.214	2	.545	
Medium	-.127	.157	.655	1	.418	.881
High	.088	.289	.092	1	.762	1.092
Any complication during pregnancy						
No (RC)						
Yes	.352	.140	6.321	1	.012	1.423
Desirability of the last birth						
Wanted then (RC)			.795	2	.672	
Mistimed	-.105	.177	.352	1	.553	.900
Unwanted	.140	.247	.319	1	.572	1.150
Highest Educational Level of the woman						
Illiterate (RC)			2.592	2	.274	
Literate,<mid compete	.237	.163	2.121	1	.145	1.267
Mid complete and above	.293	.234	1.578	1	.209	1.341
Age of the woman						
20-29 (RC)			6.772	2	.034	
15-19	-.466	.218	4.556	1	.033	.627
30-49	.333	.212	2.472	1	.116	1.395
Place of Residence						
Rural (RC)						
Urban	-.096	.191	.253	1	.615	.908
Received Full ANC						
No (RC)						
Yes	.404	.144	7.927	1	.005	1.498
Received Safe Delivery						
No(RC)						
Yes	.844	.157	28.904	1	.000	2.326
Constant	-1.714	.281	37.230	1	.000	.180

Total no. of women (unweighted) = 1361
Source: computed from unit records of NFHS-2 (1998-99) data file