Chapter - 2

Review of Literature
CHAPTER-II

REVIEW OF LITERATURE

The importance of a strong health system to achieve improvements in maternal health and reductions in maternal mortality is widely accepted (Hussein et al., 2011). Effective coverage of maternity services requires timely and affordable access, by all sectors of the population, to appropriate care of sufficient quality and safety to help assure positive health outcomes. Good access, safety and quality are the overriding aims of all health systems and such factors are crucial when considering the problem of health care. Maternal health has been defined as safe motherhood, narrowly defined to mean ensuring that all women receive the care they need to be safe and healthy through pregnancy and childbirth (Family Care International, 2000). Although most initiatives and programmes state the need to promote maternal health, progress to achieve this is most often measured in terms of maternal mortality.

2.1. MATERNAL OUTCOME INDICATORS

Goals for reducing maternal mortality are often expressed in terms of a reduction in the maternal mortality ratio. The maternal mortality rate is the number of maternal deaths per 100,000 women aged 15-49 in a given period and measures a woman’s risk of dying from pregnancy related causes and her risk of being pregnant at a particular period of time (Panos, 2000; Penn-Kekana and Blaauw, 2002). The lifetime risk is a measure of the probability of death over a woman’s reproductive life. It assumes that most women have more than one pregnancy in their lifetime and is therefore a more realistic assessment of the risk an individual woman faces because of her reproductive capacity (Panos, 2000).

2.2. MATERNAL HEALTH IN INDIA

In India, about 56,000 women each year are lost in childbirth, that's one every eight minutes. This accounts for 19 percent of maternal deaths around the world. Seventy percent of these can be prevented. The main causes of death are heavy bleeding (hemorrhage) and eclampsia (high blood pressure). On the one hand, there has been economic progress in
India but on the other; the country is still grappling with inequities and the basic right to safe childbirth.

Worldwide approximately 800 women die from preventable causes related to pregnancy and childbirth. 99% of all maternal deaths occur in developing countries. More than half of these deaths occur in sub-Saharan Africa and almost one third occur in South Asia. Maternal mortality is higher in women living in rural areas and among poorer communities. Young adolescents face a higher risk of complications and death as a result of pregnancy than older women. Between 1990 and 2010, maternal mortality worldwide dropped by almost 50% (WHO, 2012). The high number of maternal deaths in some areas of the world reflects inequities in access to health services and highlights the gap between rich and poor.

Maternal deaths are a significant cause of death in women in the 15-49 years age group and they make up a larger proportion of all cause deaths in the rural areas of poorer states, compared to other regions of India. India contributes one fifth of the global burden of absolute maternal deaths; however, it has experienced an estimated 4.7% annual decline in maternal mortality ratio (MMR) (RGI, 2006; WHO, 2012) and 3.5% annual increase in skilled birth attendance since 1990 (IIPS, 2010). While not on track to meet Millennium Development Goal number 5, India is making progress in reducing maternal mortality (WHO, 2012).

Within India, there is marked variation in MMR and healthcare access between regions and in socioeconomic factors (IIPS, 2010; Barros et al., 2012). Understanding the distribution related to cause specific mortality and access to obstetric service indicators (routine skilled birth attendance and emergency obstetric care) is essential to improve maternal health. Recent study by Montgomery et al (2014) highlights that maternal mortality and poor access to healthcare is disproportionately higher in rural populations of the poorer states of India.
Table 1: Maternal mortality in 1990-2010

WHO, UNICEF, UNFPA, The World Bank and UN Population Division Maternal Mortality Estimation Inter-Agency Group, India

<table>
<thead>
<tr>
<th>Year</th>
<th>Maternal mortality ratio (MMR)</th>
<th>Maternal deaths</th>
<th>Live births&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Proportion of maternal deaths among deaths of females of reproductive age (PM)</th>
<th>Lifetime risk of maternal death</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Per 100 000 live births (lb)</td>
<td>Numbers</td>
<td>Thousands</td>
<td>Per cent</td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>200 (140–310)</td>
<td>56,000</td>
<td>27,146</td>
<td>7.4 (5.1–10.8)</td>
<td>170</td>
</tr>
<tr>
<td>2005</td>
<td>280 (190–420)</td>
<td>76,000</td>
<td>27,220</td>
<td>9.4 (6.4–13.9)</td>
<td>110</td>
</tr>
<tr>
<td>2000</td>
<td>390 (260–600)</td>
<td>107,000</td>
<td>27,300</td>
<td>12.2 (8.3–18.3)</td>
<td>73</td>
</tr>
<tr>
<td>1995</td>
<td>480 (320–730)</td>
<td>132,000</td>
<td>27,554</td>
<td>16.0 (10.8–24.0)</td>
<td>53</td>
</tr>
<tr>
<td>1990</td>
<td>600 (390–920)</td>
<td>163,000</td>
<td>27,329</td>
<td>20.3 (13.7–30.8)</td>
<td>38</td>
</tr>
</tbody>
</table>

Annual % change

1990-2000 -4.2
2000-2010 -6.5
1990-2010 -5.3

<sup>a</sup> World population prospects: the 2010 revision. New York, Population Division, Department of Economic and Social Affairs, United Nations Secretariat, 2011.
A large number of global maternal and neonatal deaths are from India. According to the recent statement on World's mothers report released in May 2013, by Save the Children, India ranked 142 out of 176 countries. The index for this ranking was developed on the basis of five indicators—maternal health, children's wellbeing, educational status, economic and political status of women in the country.

In India, there has been some progress. The maternal death rate has fallen from about 390 to 212 deaths per 100,000 live births in about 10 years, a 67 percent decrease. However, for every woman dying in childbirth there are about 20 women who suffer long lasting and debilitating illnesses which is completely neglected. The states of Assam, Rajasthan, Uttar Pradesh/Uttarakhand still have a high maternal death rate above 300 per 100,000 live births.

The north-eastern state of Assam with the highest maternal deaths in the country has managed to drop its number of maternal deaths in the last few years. However, they continue to be the highest in the country. Assam is grappling with challenges such as difficult terrain
and inaccessibility to health services as a percentage of the population live on islands along the Brahmaputra, a majestic river, which can be aggressive and harsh in the rainy season. Earlier there were no health services available in these areas. For the last eight years, a Public Private Partnership between the Government of Assam and civil society has been running boat clinics to reach the remote, under served, unreached areas and saving lives.

Among several many reasons, the lack of maternal health care utilization has been marked as an important cause for the large number of maternal deaths (WHO, 2005). In India, merely 18.8 per cent of pregnant women receive full Ante Natal Care (ANC) (three ante natal checkup, one tetanus injection and 100 iron acid folic tablets); nearly three-quarter of births continue to take place at home, most of them are performed without the assistance of any trained health worker (IIPS, 2010); there has been dropout also from the spectrum of maternal health care utilization package. The proportion of women is very less utilizing all forms of maternal health care services- starting from ANC to institutional delivery. It is seen that, while 75 per cent of pregnant women use any type of ANC, the institutional delivery ended up in merely 47 percent (IIPS, 2010).

Furthermore, several studies have stressed upon the importance of access to and quality of health services for increasing utilization of services (Kumar et al., 1997). Programs that maximize quality as well as access to services enhance client satisfaction, leading to greater utilization (Koenig and Khan, 1999). Access helps determine whether an individual makes contact with the provider, while quality of care influences a client’s decision whether to accept and to continue using the services. Another important factor, from the supply side, is the cost of health care which is a significant barrier to service use (Griffiths and Stephenson, 2001).

Social determinants such as early age of marriage, early and repeated childbearing where 47 per cent of girls marry before the age of 18 are also contributing factors. Early marriage traditions have serious repercussions as girls are more likely to become pregnant at younger and riskier ages. Thirty-six percent of Indian women are malnourished and about 55 percent are anemic. Bodies are ill prepared to handle childbirth with poor nutrition, stunting with negative outcomes for maternal health.
Maternal and child care, along with household food security, adequate health services and a healthy environment is a third necessary (but in itself insufficient) precondition for adequate nutrition. In fact, ‘care’ may be considered as a pivotal link between these two other conditions, representing the behavioural component of intra-household decision-making and resource use. It refers to the provision in the household and the community, of time, attention and support to meet the physical, mental and social needs of the growing child and other family members. In the child nutrition context, most importantly it involves the optimal use of household resources for child feeding, protection from infection, and care for the sick child. While the issue of ‘caring capacity’ refers to all the household members -- male and female -- who are potential caretakers of children, in practice in India, the main responsibility for child care lies with the mother (who often also has a major role as an income-earner). Her capacity to manage the many competing demands on her time will govern the degree to which she can maintain a clean household environment, feed her children, care for them when sick as well as providing and preparing food for other household members.

2.3. MOTHER AND CHILD HEALTH CARE

The type of care received at child birth is often critical for the health and survival of both infant and mother. A significant proportion of neo-natal deaths are attributed to poor birth practices. During 1987, only 32% of births in rural areas and 74% in urban areas were in institutions or attended to by trained personnel (Registrar General of India 1979-86). Traditional birth attendants are unable to attend to complications and health professionals are contacted too late. Both these factors point to the need to identify mothers at risk during the prenatal period.

Recent reports show that tetanus toxoid immunisation coverage is 77% of pregnant women in India (EPI, 1990). Started in 1960, and boosted in the second half of the 1980s by the immunisation mission, this intervention is picking up as part of antenatal care. The national average of tetanus toxoid coverage however masks variations between states ranging from 16% in Assam to 99% in Kerala.

Even though abortion has been legalised in India since 1972, mortality and morbidity due to illegal abortions and birth attention by incompetent persons in unhygienic conditions
remain a major problem, mainly because of ignorance of the law and inaccessibility of professional services in rural areas. Only around half a million pregnancy terminations were performed through the health services in the fiscal year 1987-88 which is around 9% of the induced abortions likely to have been performed during the same period. Since the inception of this formal facility in 1972, 5.8 million abortions have been performed under it; less than the total number of induced abortions likely to happen in one year (UNICEF, 1990). Induced abortions in fact reflect an unmet need of women for family planning, and highlight gaps between demand for family planning on one hand and availability, accessibility and actual use of services on the other.

India is the first country to launch an official family planning programme to control population. However, the programme has not had the desired impact. As per the latest official data, the total number of family planning acceptors in India decreased by 5.0% between 2011-12 and 2012-13 (Fig. 2). The data revealed that condom is the most preferred method of family planning while sterilizations the least adopted means. The number of couples adopting various methods for family planning, including spacing methods was found to be 30.2 million, with 14.0 million preferring condoms to any other means. The total Family Planning Acceptors in India have increased over the years but in recent years especially after 2007-08 the number of accepters has shown a gradual decreasing trend.

![Family Planning Acceptors 2012-13](image)

**Fig.2. Family planning methods adopted by the couples during 2012-2013**

(Source: Health and Family Welfare Statistics in India 2013; Ministry of Health and Family Welfare, Government of India)
2.4. CHILD CARING AND FEEDING PRACTICES

Child feeding practices such as breastfeeding, weaning and feeding sick, anorexic children have a bearing on the nutritional status of the child. A comprehensive study on infant and child feeding practices carried out by the ICMR in six different regions of the country - Coimbatore, Gandhigram, Hyderabad, New Delhi, Pune and West Bengal (ICMR 1990) - indicated that a great majority of women started to breastfeed their new-borns on the third day after delivery, while liquid/semi solid supplements were rarely given to infants before six months (except in West Bengal).

A collaborative study on contemporary patterns of breast feeding conducted by WHO (1981) indicated that the prevalence of breastfeeding in the rural regions was related to socioeconomic background. In general, it was more common in rural than urban areas, and within the urban population it was more prevalent among the poor than the economically advantaged. As many as 95% of infants belonging to poor rural and poor urban mothers were breastfed, even at 15 months of age, while corresponding percentages for high and middle income groups were 18% and 51% respectively. In another study (GOI 1975-88), comparison of child feeding practices in ICDS (Integrated Child Development Services) and control areas had shown that nearly 85% of mothers started breast feeding their newborn children within 6 hrs after delivery. The report indicated that though there was no significant difference in the breast feeding practices between ICDS and control areas, delayed weaning was more common in non-ICDS children (28% vs 59%).

The four-state ICDS study undertaken by NIN (Sarma et al.,1990) has indicated that nearly 50% of the mothers did not alter the diets of their children when they were sick. Quality of intranatal care is another important indicator of health service availability and utilisation. The ICDS report shows that 76% of the deliveries in ICDS areas were conducted by trained personnel compared to 49% in non-ICDS areas. The immunisation coverage of children between 12-24 months also showed that the ICDS children in most of the states were better protected. In the states of Tamil Nadu and Maharashtra, however, the coverage was more or less similar in ICDS and non-ICDS areas. Similar results were observed in the four-state ICDS study undertaken by NIN where immunisation coverage, antenatal care,
massive dose vitamin A administration, folifer distribution etc., was two to three fold better in ICDS areas.

2.5. LITERACY

The share of education as a proportion of plan outlay in the public sector has shown a declining trend through the plan periods. Within the education sector, the share of elementary education has been falling from 56% in the first five-year plan to 29% in the seventh plan; higher education has benefited at the cost of primary education. There is a need to step up the resources for formal and non-formal education. Assuming that 70% of the 6-14 age group will be provided education through formal and 30% through non-formal channels, the annual per capita cost for universal elementary education has been estimated at Rs. 103 (formal) and Rs. 54 (informal) by the year 2000.

As of 1987-88, there were 543,677 primary, 141,014 middle and 71,305 secondary and higher secondary schools in India. The growth of educational facilities during the last one and half decades has been steady (GOI, 1987). Inter-state variations in school enrolment indicate that gender differentials are pronounced, though the percentage of scheduled castes/tribes out of the children enrolled at primary level is at par with, or higher than, the percentage of scheduled castes/tribes in the total population (UNICEF, 1990). The rural-urban divide also shows up sharply in school enrolment and as a gender differential. The new educational policy adopted by the Government in 1986 accords a very high priority to universalisation of education to ensure essential minimum education to all children up to the age of 14 years.

2.6. FEMALE LITERACY OUTCOMES

Changes in literacy rates during the 1980s are impressive for both males and females (Registrar General of India, 1991). According to the 1991 census, about 52% of India’s population is literate. At the time of independence in 1947, the female literacy rate was a mere 6%. Over the years however, there has been a steady improvement in the rate, although the absolute number of female illiterates has increased from 215 million in 1971 to 242 million in 1981. This backlog is estimated to have further swollen to 253 million in 1988, notwithstanding the rise in the female literacy level reported by the 1987-88 National
Sample Survey. Of the 340.5 million illiterates above 5 years in India in 1981, as many as 200.3 million were women. Of them 170.7 million live in rural areas. In other words, more than half of the total illiterates in India in 1981 were rural females, and this proportion remained throughout the 1980s. The female rural literacy rate in the 10-14 year age group was 36.4%, but it declined progressively with increasing age and is only 8.6% in the above-35 age group (UNICEF, 1990).

Overall, female literacy rates improved three fold from 1961 to 1991 (from 13.3 to 39.4%) while for males the level has gone up from 34.4% to 63.8% during the same period. Clearly however the female rate is still much lower than that of males (Registrar General of India, 1991) - in fact the female rate in the early 1990s can be seen to approximate the male literacy rate of a quarter a century ago.

There have been efforts to correlate female literacy with age at marriage, fertility rates and child mortality. In rural areas, a higher proportion of married women are illiterates as compared to urban areas. Further, among illiterates, around two-thirds of women got married before reaching the age of 18 years, suggesting a positive correlation between age at marriage and level of education. Available data also suggest an inverse correlation between a woman’s level of education and her fertility.

Child mortality rates are about five times higher among illiterate mothers compared to graduates (Registrar General of India, 1989). Better child survival among the educated group may be due to several factors such as better hygiene, improved nutrition and feeding practices, and timely medical intervention. A study conducted by NIN (Brahman et al., 1988) showed that, controlling for income, the energy content of the diet of children whose mothers were literate tended to be better than those whose mothers were illiterate. There are other case studies showing that maternal education has a significant influence on the nutritional status of the children (Walker and Ryan, 1990).

Women’s literacy and their use of health facilities go hand in hand. Krishnan (1985) examined overall death rates in terms of literacy, doctor, hospital and bed population ratio, per capita income and % per capita expenditure on medical and health services. He observed that literacy was the most important factor while health services also had some explanatory power.
2.7. SOCIOECONOMIC STATUS

The capacity of a mother to care for her children depends on her social status and economic activities. In many poor societies patriarchy is likely to be the main obstacle in securing a fairer distribution of work and decision making power between adult household members. Increase in the ratio of female to total income is expected to improve the economic status of women within the household and their control over resources. Their ability to realise their own preferences within the family (of which health and well-being of children is likely to be a priority) may consequently be strengthened. However, working outside the house may leave her little time for child care. It is a complex situation and women’s problems are difficult to capture in national surveys.

Adequate prenatal care encompasses medical care and educational, social, and nutritional services during pregnancy (Alexander and Korebrot, 1995). Although there are a variety of reasons women choose not to engage in proper prenatal care, 71% of low income women in a US national study had difficulties getting access to prenatal care when they sought it out (Alexander and Korebrot, 1995). Additionally, immigrants and Hispanic women are at higher risk than white or black women for receiving little to no prenatal care, where level of education is also an indicator (since education and race are correlated). Adolescents are least likely to receive any prenatal care at all. Throughout several studies, women and adolescents ranked inadequate finances and lack of transportation as the most common barriers to receiving proper prenatal care (Curry, 1990).

Income is strongly correlated with quality of prenatal care (Curry, 1990). Sometimes, proximity to healthcare facilities and access to transportation have significant effects on whether or not women have access to prenatal care. An analysis conducted on maternal healthcare services in Mali found that women who lived in rural areas, far away from healthcare facilities were less likely to receive prenatal care than those who lived in urban areas. Furthermore, researchers found an even stronger relationship between lack of transportation and prenatal and delivery care (Gage, 2007). In addition to proximity being a predictor of prenatal care access. Materia and colleagues (1993) found similar results for proximity and antenatal care in rural Ethiopia.
There have been a few case studies to assess the impact of women’s work and income on child nutrition. The analysis of women’s work and child survival undertaken by Rosenzweig and Schultz (1982), whose two stage regression analysis of an all India sample of rural households demonstrated that female employment had a significant influence on the survival of the girl child. A case study undertaken in Kerala (Gulati, 1978) indicated that the nutritional adequacy of households dependent on agricultural labour was more related to women’s employment than men’s. A study undertaken by the Maharashtra Employment Guarantee Scheme (Walker and Ryan, 1990) indicated that in households where women exercise control over their wages, more money was spent on food and other basic needs while men tend to spend more on liquor, cigarettes etc. These studies suggest that women’s gainful employment and decision making power in the family influence the child health and survival.

2.8. GLOBAL HEALTH BEYOND 2015

Millennium Development Goal (MDG) 5 is focused on reducing maternal mortality and achieving universal access to reproductive health care. Under MDG 5, India has committed to reducing maternal mortality to 108 deaths per 100,000 live births by 2015. The latest estimates of maternal mortality rate (MMR) in India, from 2007 to 2009, show a national average of 212 deaths/100,000 live births, a decline of 89 deaths per 100,000 live births since 2001–2003 (RGI, 2011). However, the same estimates also demonstrate that wide geographical disparities persist. The highest MMR can be found in Assam, where it is 390, and the lowest in Kerala, where it is 81 (RGI, 2011).

India has made extensive efforts to reduce maternal mortality and to increase access to reproductive health care and in some regions much progress has been achieved. However, the progress made has been uneven and inequitable, and many women still lack access to maternal and reproductive health care. In India, as in many other settings, social structures prevent women from having access to maternal and reproductive health care. These structures, defined by the WHO as ‘social and structural determinants of health’, vary between different contexts and influence access to and availability of care differently in different societies.
2.9. SOCIAL DETERMINANTS OF HEALTH

Maternal and reproductive health is a social phenomenon as much as a medical event, where access to and use of maternal and reproductive health care services are influenced by contextual factors. The failure of reaching the targets of MDG 5 is increasingly being analyzed and discussed in terms of equity and, recently, there have been call for greater understanding of the patterns of inequity in health within different contexts (Say and Raine, 2007; Ostlin et al., 2011). Culyer (2001) has suggested that because of their vulnerability, disadvantaged groups should be identified as a first step towards rectifying inequities in health. Further, there is a need to go beyond identifying single determinants of inequity in health, and to illuminate the inter-relationship between social and structural determinants (Say and Raine, 2007).

Inequities in health are not only the unequal distribution of health but also the unfair distribution of health due to unfair or inadequate social arrangements (Withhead et al., 2006). Key features of health inequities are that they are socially produced, systematic in their distribution across the population, and unfair (Withhead et al., 2006). Defining and identifying health inequities thus involves analysis with respect to social justice and the social determinants of health. To enhance the understanding of how inequities in health are rooted in societal structures, the Commission on Social Determinants of Health (CSDH) developed a conceptual framework of the social determinants of health inequities (Solar and Irwin, 2010). This is an action oriented framework, applicable to identify entry points for interventions and policy that could reduce inequities in health in a specific setting. It is based on the notion that health inequities emerge from a systematically unequal distribution of power, prestige, and resources among groups in society. The framework is organized into three elements: socioeconomic and political context, structural determinants, and intermediary determinants. Socioeconomic and political context includes governance; macroeconomic, social, and public policy; cultural and societal values; and epidemiological conditions. The second element, structural determinants of health, refers to the interplay between socioeconomic and political context, where structural mechanisms in the society generates a social stratification, which, in the end, results in the socioeconomic position of individuals. The concept of social determinants of health inequities is used to conceptualize
the socioeconomic and political context and structural determinants when understood jointly. The structural determinants, or the social determinants of health inequity, operate through a series of intermediary social factors. These intermediary factors include material circumstances such as housing quality and physical environment, psychosocial circumstances such as stressful living conditions and relationships, social support (lack of) and coping styles, and behavioral and biological factors such as lifestyle and genetic factors. The health system is also described as a social determinant of health, particularly since it mediates the differential consequences of ill health.

2.10. ECONOMIC STATUS AND HEALTH FINANCING

According to the Tendulkar Committee report, which the Indian Government accepted in 2011, the proportion of people living in poverty was estimated at 37% of the population (Tendulkar et al., 2012). However, poverty levels differ widely across India. India has one of the highest levels of out-of-pocket payments for health care in the world, which imposes a large financial burden on individuals and households (Berman et al., 2010). This has been argued to be one of the reasons for the inequities in health observed across the country (Balarajan et al., 2011). India has an integrated policy framework for human development and public policy as well a great variety of social protection schemes, which reflects an intention to assist the disadvantaged segments of the population (World Bank, 2011). Since 2005, the National Rural Health Mission (NRHM) has been running as a national overarching project to approach inequities in health specifically by focusing on rural areas.

Utilization of antenatal care (ANC) and skilled attendance at birth has increased among the general population in India in the last 15 years. However, progress among women belonging to economically disadvantaged segments of the populations has been slow. Results from a study looking at progress based on data from the three rounds of NFHS in 1992–1993, 1998–1999, and 2005–2006 showed that use of ANC services in the whole of India increased by 12 percentage points between 1992 and 2006 but that the increase among the poor was only 0.1 percentage points (Pathak and Singh, 2010). The same study also showed that the use of skilled birth attendants had increased by 13 percentage points but that
only 2 percentage points could be attributed to women belonging to the poorest quintile. This study also showed that there are large differences in progress between states but that the progress among the poor is substantially less than among the non-poor in all states and that the use of skilled birth attendance among the poor remained low across an urban–rural spectrum. A similar large nationwide study, also looking at the differences in use of reproductive health care between the poor and the non-poor, showed that increased utilization has occurred mainly in the non-poor populations (Mohanty and Pathak, 2009). Concordance with desired waiting time to the first birth has been shown to be associated with economic status. A study based on data from all over India showed that couples belonging to the richer quintile had twice the odds as couples from the poorest quintile to have concordant desired waiting time to first birth (Singh and Becker, 2012). The findings from this study are interpreted as an unmet need for contraception among couples with low economic status (Singh and Becker, 2012).

2.11. REGIONAL AND RURAL/URBAN DIFFERENCES IN HEALTH BASED ON ECONOMIC STATUS.

A household survey from Chandigarh Union Territory comparing coverage of maternal health care showed that among the women studied, only 32% of the women living in urban-slum areas had an institutional delivery, compared to 93% of the non-slum urban women, and 79% of the women living in rural areas (Gupta et al., 2008). The average maternal expenditure varies between geographical areas and between providers. However, a study using the National Sample Survey from 2004 showed that a vast majority of the poorest households in the country paid more than 40% of their capacity to pay for maternal health services (Bonu et al., 2009). A community survey from South Delhi showed that direct maternity expenses are high, sometimes exceeding 10% of the annual family income for the poorest (Dhar et al., 2009).

Quality of care in maternal health services has also been shown to differ according to economic and residence status. A cross sectional study conducted in Andhra Pradesh, Karnataka, Kerala, and Tamil Nadu showed significant differences in the quality of ANC between poor and non-poor groups (Rani et al., 2008). A study conducted in New Delhi
showed that health care providers were unable to meet the national standards on minimal care during pregnancy and delivery in the poorer areas of the city, whereas this did not to seem to be a problem in the higher income areas of the city (Dhar et al., 2010). A qualitative study that included both rural and urban areas of Maharashtra showed that financial constraints are important when understanding the user’s perspective of barriers to maternal health care but that these are also closely linked to perceptions of health care (Griffiths et al., 2001). One of the findings from the study was that ANC and institutional delivery are both classified as preventative measures rather than curative and, due to financial constraints, are not prioritized.

The urban population in India is one of the largest in the world, with many living in urban slums. A study on women’s reproductive health showed that a significant lower proportion of women living in slum areas compared with women living in non-slum areas had ever used contraceptives, were less likely to use skilled attendants at delivery, and less likely to receive postpartum check-ups (Hazarika, 2010). A hospital based study conducted in New Delhi showed that the use of contraceptives among urban poor was 52%, which is similar to contraceptive use in rural areas but below the use in well educated urban populations (Kumar et al., 2011). Data from the first and third round of the NFHS also showed that progress towards increased use of ANC and institutional delivery is occurring mainly among the urban non-poor, and that progress among urban-slum residents is slow (Kumar and Mohanty, 2011). The burden of costs for maternal health care among the population living in slums is often significant. A study on expenditure on maternal health care showed that the poor living in slums in the city of Mumbai spent catastrophically on care, which is assumed to occur when the health expenditure exceeds a proportion (usually 40%) of the total household income. The study also showed that a high proportion of the total spending was spent on informal costs (Skordis et al., 2011). The same study also showed that poor households in the slums were likely to use wage income, as compared to higher income groups that used savings, and borrowed money to pay for maternal health care, which is assumed to increase the risk of both transient and chronic poverty.
Findings from a study conducted in the slums of Mumbai show that traditional birth attendants are the most common health professionals to assist at home births and that the direct cost of a home birth was not substantially less than the cost of an institutional delivery in the public health sector (Das et al., 2010). Customs and tradition, as opposed to cost, was the most common reason given for delivering at home. A study conducted in the slum of Indore showed that only half of the women who had given birth recently were well prepared for delivery and the possibility of an obstetric emergency (Agrawal et al., 2010). The same study showed that maternal literacy and use of ANC services were important predictors of birth preparedness. Untreated reproductive morbidities among women living in urban slums are common. Findings from a cross sectional study conducted in Rajkot showed that as many as 57% were suffering from one or more reproductive morbidity and that only half of these women sought care for their complications (Bhanderi and Kannan, 2010).

Women living in rural parts of India are considered a vulnerable group in terms of maternal and reproductive health. In rural areas home births remain the most common practice, with only 29% of the deliveries taking place in a health facility (NFHS, 2012). Results from a study based on data from the NFHS 1 and 2 on health seeking behavior and institutional deliveries in rural areas showed that the influence of household wealth is stronger than the impact of geographical access (Kesterton et al., 2010). In a case control study from rural Rajasthan, women from poor households were shown to be of nearly five times higher at risk of dying in pregnancy related complications than women belonging to non-poor households (Gupta et al., 2010). In rural Tamil Nadu, it was found that low use of contraception caused many women to undergo abortions to space or/and to limit births, and that a majority of the abortions identified in the study had been conducted by unqualified practitioners (Varkey et al., 2000). A study using verbal autopsies to investigate pregnancy related deaths in rural Rajasthan showed that 60% of the families of the deceased women had to borrow money to meet expenses for health care, which is suggested to have contributed to significant delays in seeking care (Iyengar et al., 2009). In rural Maharashtra, a study showed that the capacity of the health system was low in terms of providing adequate iron supplements to women during pregnancy and that the public health system could not reassure availability of emergency obstetric care (Chaturvedi and Ranadive, 2007).
Over half (59%) of the pregnant women in India are anemic according to estimations based on data from the NFHS 3 (2012). Furthermore, results from the same survey showed that anemia is common among all wealth quintiles in the society, 64.3% in the lowest wealth quintile and 46.1% in the highest quintile suffers from some type of anemia. A study conducted at health facilities in Karnataka found socioeconomic status to be the main contributing factor to high prevalence of anemia among pregnant women (Noronha et al., 2010). Low knowledge in regards to anemia and health seeking behavior is also associated with high prevalence of anemia.

2.12. GENDER

Gender as a structural determinant of health operates through different intermediary determinants that influence the maternal and reproductive health of women and their access to care. In 2010 India was ranked as number 112 of 134 countries on the global gender gap index (Hausamann et al., 2011). Since the independence, the government of India has passed many laws to protect the rights of women. In general, however, implementation of many of these laws is weak. Only 55% of the women in India are literate compared to 78% of the men (Kesterton et al., 2010)). The position of women in the family and community is still weak. Data from the NFHS 3 conducted in 2005–2006 indicated that a majority of men think that husband and wife should make decisions jointly but that the husband should have the final word (NFHS, 2012). This has implications for the health seeking behavior of women, who may be dependent on their husband’s permission to access health services.

In India, there is an association between the use of adequate prenatal, delivery and postnatal care and women’s autonomy (Mistry et al., 2009). The quality of family relationships and type of household is also associated with access to maternal and reproductive health care. A study using data from the NFHS 2 showed that women living in joint households (couple live together with the parents of the husband) were less likely than women living in nuclear households (households composed of husband, wife and children) to report use of contraceptives and less likely to utilize ANC. Women living in joint households where in-laws were present were less likely to either deliver in a health facility
or in the presence of a skilled birth attendant (Saika and Singh, 2009). Data from the Women’s Reproductive History Survey from 2002 revealed that women with better marital relationships and those who lived in nuclear households were more likely to use ANC services and to have an institutional delivery than others, while women living in joint families and who had better relationship with their in-laws were more likely to use ANC services (Allendorf, 2010). A majority of mothers-in-law in a qualitative study conducted in rural Madhya Pradesh was of the opinion that they should make decisions with regard to the use of sterilization among the wife(s) of their son(s) and that this decision often was based on the number of grandsons borne (Char et al., 2010).

Gender norms have also been shown to influence attitudes towards the use of contraceptives and women’s ability to make decisions on family planning. A qualitative study conducted in the western parts of India showed how women publicly were reluctant to acknowledge awareness and use of modern contraceptives and described the use of contraceptives, other than sterilization, as socially unacceptable (Hall et al., 2008). A study from rural West Bengal using both quantitative and qualitative methods showed how patriarchal structures influence women’s use of contraceptives, especially those women who married at a young age (Chacko, 2001). A qualitative study conducted in Maharashtra indicated restricted access to contraceptives, where issues related to reproductive health were considered to be a ‘women’s issue’ and not commonly discussed between spouses but that it was the husband that made decisions in relation to health care (Kulkarni and Chauhan, 2009). A cross sectional study conducted in a clinical setting in New Delhi also showed that reason for seeking abortion care were unplanned pregnancies (32.8%), inadequate income (24.6%), family complete (20.3%), and contraceptive failure (22.3%) (Bahadur et al., 2008). The study concludes that women do not only face barriers such as limited education and poverty, but they also face barriers due to lack of control of their reproductive intentions. Low use of contraceptives and gender norms that prevent married women from refusing their husband’s sexual demands was shown in a study from Tamil Nadu to lead to unplanned pregnancies and a subsequent need for abortion (Ravindran and Balasubraminaian, 2004).
Results from a qualitative study conducted on women seeking emergency obstetric care in Karnataka showed that maternal deaths are underreported and not reviewed and that ANC and institutional delivery are not linked to postpartum or emergency obstetric care (George, 2007). The results from this study indicates that a weak health system, including weak information systems, discontinuity of care, unsupported health workers and limited referral and accountability mechanisms, has implications for the ability to prevent maternal mortality among women seeking care during delivery in this setting.

2.13. EDUCATION

The literature indicates a strong association between education and use of reproductive health services such as family planning and ANC. The NFHS 3 (2012) indicated that the fertility rate among women with no education was 3.55, compared to 1.8 among women with 12 years or more education. Further, 29% of women with no education received at least one ANC visit as opposed to 88% among women with 12 years or more of complete education.

Other studies have found similar associations. A study from Madhya Pradesh showed that the odds of using ANC, skilled birth attendants, and postnatal care are significantly higher for women with secondary education and above compared to illiterate women (Jat et al., 2011). A large study from Uttar Pradesh looking at family planning among the urban poor showed that less educated women (1–11 years) living in both slum and non-slum areas are more likely to be sterilized, less likely to use other modern contraceptives, and more likely to have an unmet demand for family planning than more educated women (+12 years of education) (Speizer et al., 2012). A study conducted based on data drawn from the NFHS 2 found that women with higher education (middle school and higher) were more likely to be using contraceptives (Dwivedi and Sogarwal, 2008). A cross sectional study conducted in rural Punjab showed that 65.9% of the non-educated women, 78.1% of women with primary education, and 80% of the women with high school education were using contraceptives (Singh et al., 2009). Among illiterate women and women with primary education sterilization is the most common contraceptive method, while among women with high school education condoms were the most common (Singh et
A study from New Delhi showed that illiterate women use contraceptives less compared to more educated women and when they do they prefer permanent methods of contraceptives (Kumar et al., 2011). Level of education has also been shown to be associated with anemia, with less educated women being more likely to be anemic (Bisoi et al., 2011). A cross sectional analysis using data for the state of Maharashtra from the NFHS 2 showed that level of education influences place of delivery, where 55.9% of women with primary education or less delivered at home compared to 25% among women with secondary education (Thind et al., 2008). The same study showed that there was not a wide difference in utilization of institutional delivery conducted at a public facility (28.8% among women with primary education or less and 34.7% among women with secondary education), but there was a considerable difference in use of private facility for an institutional delivery (15.3% among women with primary education or less and 40.3% among women with secondary education).

### 2.14. AGE AT MARRIAGE

Age can also be a source of health inequity. In India, children and adolescents (defined by the WHO as a person between 10 and 19 years of age) seem to have inequitable access to reproductive health. Some insights can be found in the subnational survey in India in 2006–2020 (IIPS, 2010). The survey reports that 19% of men and 9% of women between 15–24 years had experience from a pre-marital romantic relationship, most of which included some form of physical intimacy. Further, two-fifths of the men and one-quarter of the women who reported to have experience from pre-marital romantic relationships had also engaged in a sexual relationship with the romantic partner (IIPS, 2010). No large differences were found between adolescents living in rural areas compared to adolescents living in urban areas. Adolescents engaged in pre-marital sexual relationships reported low use of condoms: only 13% of the men and 3% of the women reported that they always used a condom (IIPS, 2010). A survey conducted in Bihar and Jharkhand showed that unmarried young women experienced difficulties in accessing timely abortion care due to late recognition of pregnancy and difficulties in accessing health care (Jejeebhoy et al., 2010).
Child marriage remains a common practice in India, despite its illegality. Data from the NFHS 3 conducted in 2006–2007 show that among women in the age group of 20–24, 18% married before the age of 15, and 47% were married before the legal age of 18 (NFHS, 2012). Moreover, in the lowest wealth quintile, as many as 78% of women was married before the age of 18. Young age at marriage has implications for women’s reproductive health. It is associated with low use of contraceptives, unmet demand for spacing methods (Sahoo, 2011), with high fertility and multiple unwanted pregnancies (Prakash et al., 2011), and with poor obstetric outcomes (Trivedi and Pasrija, 2007). A large study looking at married adolescents (15–19 years) living in rural India showed low levels of full coverage of ANC (i.e. those having 3 ANC visits, IFA and TT2/booster) (14%), of skilled attendants at birth (46%), and of postnatal care (35%) (Singh et al., 2012). Women who were married before the age of 18 were more likely to have experienced physical and sexual domestic violence than women married after the age of 18 (Santhya et al., 2010). Young age at marriage has also been shown to be associated with low use of ANC (Singh et al., 2012) and delivery care (Santhya et al., 2010) among married adolescent pregnant women in India. A hospital based study conducted in Kolkata showed that teenage pregnancies were associated with more adverse complications, such as preterm births and stillbirths compared to adult mothers (Mukhopadhyay et al., 2010) and a study from Rajasthan showed that pregnant adolescent mothers were as two and half times higher at risk of dying from pregnancy related complications than adults (Gupta et al., 2010). Young age at marriage was shown to be associated with high levels of anemia during pregnancy in a study in Maharashtra (Rao et al., 2011).

2.15. SOCIAL CLASS

In India the stratification of social class (caste) is one of the strongest social determinants of health (Mukherjee et al., 2011). Furthermore, caste has been shown to be the most appropriate household characteristic for identifying poor and disadvantaged households. The summative term ‘socially backward classes’ (SBC) is commonly used in India to describe some of the most socially disadvantaged groups and includes the scheduled castes (SC) and scheduled tribes (ST) and other backward caste (OBC). They are not only distinguished by economic poverty but also by their marginalization and seclusion from the
rest of the society, having different traditions and living in the most economically
disadvantaged areas (Nayar, 2007).

According to the NFHS 3, the likelihood of receiving any type of ANC is lowest among women belonging to SC or ST. Only 18% of the births among these women are conducted at a health facility, compared to 51% among women who do not belong to SC, ST, or any OBC. These results are supported by state-level studies. For example, a study from Jharkhand showed that women who belong to a tribal caste are less likely to have received ANC, more likely to deliver at home, and less likely to have received a postnatal check-up (Maiti et al., 2005). A study conducted in Uttar Pradesh showed that women belonging to SC or ST were less likely to obtain ANC and less likely to be assisted by a skilled birth attendant, although caste did not seem to have an impact on the use of iron folic acid supplement (Saroha et al., 2008). A large study covering most parts of India showed that the odds of using skilled birth attendants at birth were considerably lower among women belonging to tribal castes than women belonging to non-tribal groups (Hazarika, 2011). Similar results from Jharkhand found that home deliveries are common in this state but that there are large differences between ST and other groups, 94% among women from a ST compared to 69% of the non-tribal groups (Agrawal and Agrawal, 2010). A study from Rajasthan looking at pregnancy related deaths using verbal autopsies found that although only 37% of the women from the study sample belonged to the SC and ST, as much as 74% of the maternal deaths occurred among women belonging to these groups (Iyengar et al., 2009).

There are also several studies showing that contraceptive use is low among women belonging to tribal and SC. A study conducted on family planning among two ST in West Bengal showed that awareness of contraceptives methods other than sterilization was low and that the among women using contraceptives 97.6% belonging to the Lodhas tribe and 73% belonging to the Santal tribes were using sterilization (Basu et al., 2004). Similar results can be found in a study of two tribes in Andhra Pradesh where 75.6% were not using any contraceptive method at all and that permanent birth control (sterilization) was the most common type of contraceptive used (Lakshmi et al., 2011). A study from Rajasthan showed that sterilization is the most commonly known and used contraceptive method among
women belonging to tribal castes (Bhasin and Nag, 2007). Findings from a study from rural areas of Meghalaya showed that high levels of awareness of contraceptives may not increase the level of utilization amongst members of tribal castes (Deb, 2010).

2.16. HIV/AIDS

Maternal HIV rates vary around the world, ranging from 1% to 40%, with African and Asian countries having the highest rates (McIntyre, 2005). HIV/AIDS can be transmitted to the offspring during the prenatal period, childbirth, or breastfeeding. If a mother is infected with the HIV/AIDS virus, there is a 25% chance that she will pass on the virus to her offspring if she does not receive proper treatment during pregnancy; on the other hand, if a mother is treated during her pregnancy, there is a 98% chance that her baby will not become infected (HIV/AIDS, 2013).

According to UNICEF, the last decade has seen a large increase in death among young children due to HIV/AIDS contacted from their parents (UNICEF, 2013), especially in countries where poverty is high and education levels are low (Toure, 2012). Although several preventative measures do exist, cost and infrastructure are two central problems that international organizations and health agencies find when trying to implement solutions to the problem of mother-to-child HIV transmission in developing countries (McIntyre and Gray, 2002). Having HIV/AIDS while pregnant can also cause heightened health risks for the mother. A large concern for HIV-positive pregnant women is the risk of contracting tuberculosis (TB) and/or malaria, in developing countries (McIntyre, 2005).

Although recent research has tried to incorporate availability of health services in the utilization model, conceptually it is assumed that health services form a constraint to health care utilization, where services are available, utilization will increase. Yet, empirical research in the Indian context and elsewhere often fails to find that availability of services automatically increases utilization or health outcomes (Stephenson and Tsui 2003; Sunil et al. 2006). This has led to calls for a deeper understanding of health systems and how they interact with people’s lives.
The above studies revealed that

1. There are limited studies conducted on availability and utilization of health care facilities

2. There are limited studies on maternal mortality

3. There is shortage of data on women’s self perception on health and the prevalence of diseases.