REPRODUCTIVE HEALTH STATUS IN INDIA

“Reproductive Health is a state of complete physical, mental and social wellbeing and not merely absence of disease or infirmity, in all matters related to the reproductive system and to its functions and processes. Reproductive Health, therefore, implies that people are able to have a satisfying and safe sex life, have capability to reproduce, have freedom to decide if, when, and how often to do so. Implicit in this last condition are the rights of men and women to be informed and have access to safe, effective, affordable and acceptable method of family planning of their choice, as well as other methods of their choice for regulation of fertility which are not against the law, and the right of access to appropriate health-care services that will enable women to go safely through pregnancy and childbirth, and provide couples with the best chance of having a healthy infant. It also include sexual health, the purpose of which is enhancement of life and personal relations, and not merely counselling and care related to reproduction and sexually transmitted diseases” (ICPD) Programme of Action”.

Reproductive Health focus provides a means for addressing health and population issues with an emphasis on needs of women and men. Specific reproductive events, notably pregnancy and child bearing have an impact on women’s health as well as on traditionally emphasized demographic trends. However, Reproductive Health presents a life long process inextricably linked to the status and role
of women in their homes and societies and is not just related to the biological events of conception and birth.

Reproductive health is defined as ‘the ability of women to live through the reproductive years and beyond, with reproductive choice, dignity and successful child bearing, and to be free from gynecological diseases and risks’. Within the framework of WHO’s definition of health as “a state of complete physical, mental and social well being and not merely the absence of disease or infirmity, reproductive health addresses the reproductive processes, functions and systems at all stages of life.

Reproductive health implies that people are able to have a responsible, satisfying and safe sex life, and that they have the capacity to reproduce and the freedom to decide if, when and how often, to do so. Implicit in this last condition are the right of men and women to be informed of and to have access to safe, effective, affordable and acceptable method of fertility regulation, of their choice, and the right of access to appropriate health services, that will enable women to go safely through their pregnancy and child birth and to provide couples with the best chance of having a healthy infant (WHO, 1994).

In the present chapter an attempt is made to sketch the Status of Reproductive Health of Women in India. For this purpose the secondary data derived from DLHS1 and NFHS2 are used. The status of reproductive health is portrayed with reference to such broad
parameters as marriage, childbearing, delivery of child, health care during pregnancy and the knowledge about reproductive tract infections.

**Marriage**

Marriage in India marks the point in a woman’s life when childbearing becomes socially acceptable. Thus, Marriage in the household is an important event. Marriage is a principal indicator of women’s exposure to the risk of pregnancy. Early age at marriage in a population is usually associated with a longer period of exposure to the risk of pregnancy and higher fertility levels.

**Current Marital Status**

In India Seventy-five percent of Indian women age 15-49 are currently married, less than 1 percent are married but *gauna*³ has not been performed, 3 percent are widowed, and 1 percent are divorced, separated, or deserted. One-fifth of Indian women age 15-49 have never been married (NHFS-3, 2007). The DLHS2002-04 presents more details in this regard. The report reveals:

Twenty four percent of females in the age group 15-19 years followed by 70 percent in the age group 20-24 years, 90 percent in the age group 25-29 years, 91 percent in the age group 30-44 years, 76 percent in the age group 45-59 years and 39 percent of those 60 years and above are currently married.
The proportion of never married is 33 percent in India, and it is higher for males (39 percent) than for females (27 percent). The proportion of never married among males declines with increasing age and it is one percent never married by the time they are in the age group 45-59 years. A similar pattern has been observed in the case of females with the lowest never married proportion in the age group 60 years and above. The proportion of divorced, separated or widowed is negligible and concentrated to the older age group for both males and females. Sixty percent of the women aged 60 years or older are widowed/divorced/separated. Among the de facto population aged 10 years and above, 57 percent of males and 60 percent of females are currently married.

**Age at Marriage**

Age at first marriage has a profound impact on childbearing (and this on reproductive health) because women who marry early have on average a longer period of exposure to pregnancy and a greater number of lifetime births. The minimum legal age at marriage in India is 21 years for males and 18 years for females. However, traditionally, early marriages are more common in India.

Increase in the median age at first marriage are proceeding at a very slow pace, and a considerable proportion of women still marry below the legal minimum age at marriage. One-fifth of the boys and a little more than one-fourth of the girls got married below the corresponding specified legal age for marriage. This proportion is
much higher in the rural areas compared to urban areas of the country. It is also found that, the percentage of girls who were married below the legal age for marriage is the highest in Bihar (52 percent) and Rajasthan (49 percent) and the lowest in Himachal Pradesh (13 percent). (DLHS2002-04, 2006). The median age at first marriage among women age 20-49 is 17.2. More than one-quarter (27 percent) of Indian women age 20-49 married before age 15; over half (58 percent) married before the legal minimum marriage age of 18, and three-quarters (74 percent) married before reaching age 20.(NFHS-3, 2007).

But there has been steady rise in age at marriage. Notwithstanding these currents, NFHS-3 data indicates a promising trend for future. It reveals that over time, however, there has been a considerable increase in the median age at first marriage. The median age at first marriage in India is almost two years higher for women age 20-24 than for women age 45-49. NFHS-3 report reveals that there is a gradual decline in the proportion of women married by ages 15, 18, and 20 years from the oldest to the youngest age groups. A particularly notable decline is seen in the proportions married by age 15 in the three youngest age groups, from 25 percent of women age 25-29 to 12 percent of women age 15-19.

This trend is supported by DLHS data too which shows that the mean age at marriage among the boys and girls in the country as 24.5 and 19.5 years respectively. Mean age at marriage for boys and girls
in urban India are 26 years and 21 years respectively. The corresponding figures in rural areas are 24 years and 19 years respectively. The average age at marriage being 25 years for boys and 20 years for girls at the national level, both boys and girls oblige the legal age of marriage.

**Child Bearing**

Child bearing is an important event in the reproductive health and poses greatest risk to the women.

Women in South Asia have more pregnancies than in any other region of the world other than Sub-Saharan Africa. Women in India remain largely valued for their reproductive performance and large numbers of children and sons in particular (at least two) are widely desired. With a total fertility rate of 4.3, the average woman spends a large proportion – about one-third – of her reproductive years in pregnancy and lactation. Early, frequent and rapid child bearing is then the norm, reinforcing, in turn, women’s already poor reproductive health and enhancing their chances of pregnancy related complications. Unfortunately there are few studies in India on the relationship between birth intervals and maternal depletion, health or mortality. An analysis of all maternal deaths occurring in three hospitals in Bangkok, however, confirms that women with a previous birth intervals of less than two years had a 250 per cent high risk of dying than women with a longer birth interval (Royston and Armstrong, 1989). Studies in India (Ramachandran, 1989) indicate
that morbidity among women who conceive during lactation is considerably higher than in other women; the mean birth weight of infants born within a twelve-month interval from a previous birth was significantly lower than those born after a twelve-month interval.

Finally, there is the familiar link between the length of the birth interval and infant mortality: a study in Punjab in the 1970s reports infant mortality rates of 206 for those born after an interval of less than one year, compared to 132 and 108 for births occurring after interval 2-3 and more than 4 years respectively (Sadik, 1980). Another study (Chatterjee, 1989) indicates that births occurring within 12 months of a previous one are exposed to a mortality rate of 200 compared to 100 in case where the birth interval exceeds 12 months. Apart from higher mortality, short birth intervals are associated with growth faltering of the immediately older sibling.

The process of child bearing can be best understood with reference to age at first birth, fertility of the women (children ever born and living), birth order, pregnancy outcome and pregnancy problems.

**Age at First Birth**

The age at which women start childbearing is an important demographic determinant of fertility. A higher median age at first birth is an indicator of lower fertility. Early childbearing is fairly common in India. Twelve percent of all women age 15-19 and 44 percent of currently married women aged 15-19 have already had a child. This trend of birth deliveries at younger ages in India is steadily
decreasing. The same pattern of decreases at younger ages is evident for every exact age at birth.

Five percent of women age 25-49 have given birth by age 15. The percentage who gave birth by age 15 decreases steadily from 6 percent among women age 35-39 to 1 percent among women age 15-19.

Thirty percent of women age 25-49 gave birth before age 18 and 53 percent gave birth by age 20. By age 25, 85 percent of women age 25-49 have given birth. The median age at first birth is 20 for women age 20-49 in the country as a whole.

Age at first birth in India is found to be influenced by such factors as caste, education and standard of living/wealth. The median age at first birth is six years higher for women who have completed 12 and more years of schooling than for women with no education.

By caste/tribe, women from other backward classes have a median age at first birth that is about half a year higher than that of women from scheduled castes or scheduled tribes, and women belonging to none of these groups have the highest median (20.6 years).

The median age at first birth increases steadily with wealth index quintiles. The median is more than three years higher for women in households in the highest wealth quintile than for women in households in the lowest wealth quintile.
**Children ever Born and Living**

A look at the mean children ever born by current age of women reveals that older women had experienced more average live births than younger women. Women with longer marital duration have higher mean children ever born. On the average, women who are married for 15 or more years have 3.9 children ever born and on the average 3.4 of them are surviving.

Among women age 15-49 in India, the mean number of children ever born is 2.26 for all women irrespective of marital status and 2.85 for currently married women. The mean number of children ever born increases steadily with age, reaching a high of 4.1 children for all women age 45-49 and 4.24 children for currently married women age 45-49.

On the average, women who are completing the reproductive period have given birth to 4 children in their reproductive life of which 3.5 children are surviving on the average.

Seventy percent of urban total fertility and 63 percent of rural total fertility are concentrated in the prime childbearing ages 20-29. Fertility at age 15-19 accounts for 14 percent of total fertility in urban areas and 18 percent in rural areas. Fertility at ages 35 and older accounts for only 4 percent of total fertility in urban areas and 7 percent in rural areas.

Completed fertility in India varies from a low of 2.5 mean children ever born for Tripura and Kerala to the highest of 5.4
children in Uttar Pradesh. Completed fertility in terms of mean children ever born are high in the state/union territory of Uttar Pradesh (5.4), Bihar (5.2), Nagaland, Meghalaya, Madhya Pradesh, and Rajasthan (4.7 each), Jharkhand (4.5), Arunachal Pradesh and Uttaranchal (4.3 each), Lakshadweep (4.0). With the exception of Tripura, Kerala, Goa, Tamil Nadu, Andaman and Nicobar Islands, Chandigarh and Pondicherry, mean children ever born in all states/union territories of India is more than 3 children. It is also true that in most of the states/union territories the mean number of male children is more than the mean of female children born to women in 40-44 years.

There is a clear rural-urban divide in terms of mean children ever born with 2.8 children in rural areas and 2.4 children in urban areas.

The average children ever born also vary by caste/tribe of the eligible women. For women belonging to scheduled caste and tribe, the mean children ever born are 2.9 each, other backward class is 2.7 and other caste is 2.5. By caste/tribe, the TFR is 0.6 children higher for scheduled-caste women, 0.8 children higher for scheduled-tribe women, and 0.4 children higher for women belonging to other backward classes (OBC) than for women who do not belong to any of these groups.

The mean children ever born is higher for non-literate women (3.3) than for women who have completed 0-9 years of schooling (2.3)
and 10 or more years of schooling (1.7). The mean number of surviving children for women corresponding to these educational levels is 2.8, 2.2 and 1.7 respectively. The TFR for India is 1.8 children higher for women with no education than for women with 12 or more years of education.

For the country as a whole, the DLHS-RCH shows an inverse association between mean children ever born and educational attainment of women and also with the level of household economic comfort.

Further the mean children ever born for women classified into low, medium and high standard of living by SLI are 3.1, 2.6 and 2.2 respectively.

**Birth Order**

The distribution of births by birth order is yet another way to understand fertility.

Overall, the proportion of births at each order is larger than the proportion at the next higher order. Thirty-one percent of all births are first-order births, 28 percent are second-order births, 16 percent are third-order births, and 25 percent are births of order four or higher.

Seventy-seven percent of births to mothers age 15-19 are of order one; by contrast, 65 percent of births to mothers age 30-39 are of order four or higher. The proportion of births that are of order four or higher is 16 percent in urban areas and 28 percent in rural areas.
By current age of eligible women, more than eighty percent of births to women in the age group 35-39 years and 40-44 years are the fourth and higher order births. For women in the age group 15-19 years, 76 percent of births are first order and 21 percent of births are second order.

In the case of eligible women in urban areas 32 percent of the births are of the third and higher order whereas births of these orders constitute 46 percent for rural women indicating that higher order births are more concentrated in rural areas.

In India, births to non-literate women are of higher order whereas lower order births occurred to women who completed 10 or more years of schooling. The data from both the national surveys reveal this.

The proportion of births of order four or higher is particularly high for births to women with no education (41 percent), and scheduled-tribe women (35 percent). The proportion births of order four or higher is only 3 percent for women with 12 or more years of education (NFHS-3, 2007).

Of the total births, to non-literate women, 57 percent are third and higher order births, followed by 32 percent for women with 0-9 years of schooling and 16 percent for women who had 10 or more years of schooling.

The occurrence of births of the third order and above is more among women from scheduled tribe (49 percent) than among women
from scheduled caste (46 percent), other backward class (42 percent) and other castes (35 percent). (DLHS - 2002-04, 2006)

Incidence of births of the third order and above for women classified by household standard of living index are 23 percent for high, 36 percent for medium and 52 percent for low living standard household women.

The data on regional differentials in the third and higher birth order show clear division between the southern states that fall on the lower side and the Empowerment Action Group (EAG) states and some north-eastern states that fall on the higher end.

Third and higher order births form about 57 percent of all births in Uttar Pradesh and Nagaland. The highest percentage is about 60 percent in the state of Meghalaya and the lowest is about 16 percent in Kerala.

Forty-two percent of births to women in households in the lowest wealth quintile were of order four or higher, compared with just 6 percent of births to women in households in the highest wealth quintile. The decrease in fertility over time is evident from a comparison of the birth-order distribution in 1998 to 2005 (the tree rounds of NFHS-1, NFHS-2, and NFHS-3) for ever-married women. The proportion of births of order four or higher decreased from 31 percent in 1998 (NFHS-1) to 28 percent in NFHS-2 and 25 percent in 2005 (NFHS-3, 2007).
Health Problems during Pregnancy

Complications during pregnancy may affect both women’s health and the outcome of the pregnancy adversely. Early detection of complications during pregnancy and their management are important components of the safe motherhood programme.

The following are a few pregnancy-related problems such as swelling of hands and feet, paleness, weak or no movement of foetus, abnormal position of foetus, difficulty with vision during daylight, night blindness, convulsions (not from fever), swelling of the legs, body or face, excessive fatigue, or vaginal bleeding and other problems.

Night blindness, or difficulty in seeing at dusk, is the result of chronic vitamin A deficiency and is often seen in pregnant women in areas where vitamin A deficiency is endemic. Convulsions accompanied by signs of hypertension can be symptomatic of eclampsia, a potentially fatal condition. The potential health risk posed by vaginal bleeding during pregnancy varies by when in the pregnancy the bleeding takes place.

The pregnancy-related health problems most commonly reported are excessive fatigue (48 percent) and swelling of the legs, body, or face (25 percent). Ten percent of mothers had convulsions that were not from fever and 9 percent reported night blindness. Only 4 percent had any vaginal bleeding. The reported prevalence of both kinds of vision problems, convulsions that were not from fever, and excessive fatigue is higher in rural than in urban areas. In contrast,
swelling of the legs, body, or face is more prevalent in urban areas (NFHS-3, 2007).

About 34 percent of the women experienced at least one pregnancy related problem. The proportion was slightly lower among rural women (34 percent) than among urban women (36 percent). The major problems reported were ‘swelling of hand and feet’ (20 percent), ‘paleness’ (13 percent), and ‘visual disturbance’ (8 percent). Only 2 percent reported ‘abnormal position of foetus’, and ‘vaginal bleeding’. About 4 percent of the women reported ‘convulsions’ and three percent reported ‘weak or no movement of foetus’ (DLHS – 2002-04, 2006).

**Place of Delivery**

One of the important thrusts of the Reproductive and Child Health Programme is to encourage deliveries in proper hygienic conditions under the supervision of trained health professionals. Deliveries are largely conducted by untrained personnel and in unhygienic conditions; both contribute significantly to poor maternal health.

A 1984-85 study of traditional birth attendants (Sharma and Bali, 1989) in slums in Delhi reveals that, among intranatal practices, as many as 80 per cent did not wash their hands before delivery and two-third used an unsterilized (but fresh) blade to cut the cord. This is quite consistent with a hospital based study of neonates with tetanus
which reports that in all cases, unsterilized blades, knives or broken glass were used to cut the cord (Kumar et al., 1988).

The National Population Policy (NPP) adopted by the Government of India in 2000 (Ministry of Health and Family Welfare, 2000) reiterates the Government’s commitment to the safe motherhood programme within the wider context of reproductive health. Among the national socio-demographic goals for 2010 specified by the policy, several goals pertain to safe motherhood, 80 percent of all deliveries should take place in institutions by 2010, hundred percent deliveries should be attended by trained personnel, and the maternal mortality ratio should be reduced to a level below 100 per 100,000 live births.

Less than 40 percent of births in India take place in health facilities. The majority of the institutional deliveries were conducted in private institutions (22 percent of total deliveries) as against in government institution 19 percent of total deliveries. A large proportion of the births (59 percent) took place at home More than half take place in the woman’s own home and 9 percent take place in the parents’ home. With regard to deliveries at home, the proportion of deliveries in a woman’s own home increases and the proportion in her parents’ home decreases with age and birth order. Mother’s education and household wealth both have a strong negative association with deliveries at home (NFHS-3, 2007).
The percentage of births occurring in health institutions is higher for younger women under the age of 35 years than for women aged 35 years and above. The percentage of institutional deliveries decreases as parity increases. The proportion of births occurring in a health facility is higher for mothers under 20 years of age and age 20-34 years (38-40 percent) than for mothers age 35-49 (22 percent).

Only 22 percent births of scheduled-tribe women take place in institutions as compared to 33 percent of births to scheduled-caste women, 40 percent to other backward classes and 54 percent of births to women from the ‘other’ castes category.

Institutional deliveries are more common among women who had four or more antenatal check-ups (71 percent) than among those who had fewer antenatal check-ups. Institutional deliveries are least prevalent among births to women who did not receive any antenatal check-up (11 percent).

Women with a high standard of living were more likely to give birth in health institutions than women with a low standard of living. The percent of the institutional deliveries increases substantially with women’s education and economic status, though the variation in the institutional deliveries by women’s education is much conspicuous than that by women’s economic status.

Institutional deliveries, particularly in private health facilities, increase sharply with education and the standard of living. About one-fifth births to non-literate women and nearly 80 percent births to
women who had completed at least 10 or more years of schooling took place at health institutions. One factor contributing to these patterns may be a heightened awareness of the benefits of professional medical care during both pregnancy and delivery among urban, educated women and women in households in the highest wealth quintile.

The availability of a health facility establishes a positive relationship with births at health institutions. About 35 percent of women give birth at a health institution with availability of health facility within a village compared with 25 percent of women with non-availability of health facilities in the village.

The extent of institutional deliveries in India varies widely across the states/union territories, from the lowest of 18-24 percent in Nagaland, Chhattisgarh, Jharkhand, Uttar Pradesh, Bihar and Uttarakhand to the highest of 86-98 percent in Tamil Nadu, Goa, Pondicherry and Kerala. In Andhra Pradesh, Tripura and Jammu and Kashmir and in Union territories of Daman and Diu, Andaman and Nicobar Islands and Lakshadweep, 60 percent or more deliveries took place in health institutions.

Several factors are likely to contribute to the positive relationship between antenatal care visits and delivery in a health facility. Antenatal care providers may advise pregnant women to give birth in an institution. Conversely, women who register with a health facility for delivery may be called for regular antenatal check-ups by the facility. Another important factor may be pregnancy complications,
because women with pregnancy complications are more likely than other women to have antenatal check-ups and to deliver in a health facility.

A large majority of women who did not deliver their last birth in a health facility (72 percent) said they did not feel it necessary to deliver in a health facility. In addition, 26 percent reported that it costs too much to deliver in a health facility. Eleven percent said that the health facility is located too far away or that transport was not available to reach the facility. The proportion of women reporting that delivering in a health facility costs too much or that the health facility is too far or no transport was available is higher in rural than in urban areas.

Forty-five percent of men who said the child was not delivered in a health facility said that either they or their family did not feel it necessary to have the delivery in a health facility (or did not allow it); 24 percent reported that it costs too much; 11 percent reported that mother of the child did not think it was necessary, and 7 percent said that the health facility was too far away or that no transportation was available.

Thus, a substantial proportion of women and men in India are not convinced about the need to have a delivery in a health facility. These results suggest the need to inform parents and families more about the benefits of delivering in a health facility and to help overcome traditional attitudes and other hurdles that discourage
institutional births. In addition, since about one-third of women and men gave reasons dealing with the cost of services and problems of accessibility, utilization of health facilities for deliveries could also be increased by lowering direct and indirect costs and making services more accessible.

**Assistance during Delivery**

Obstetric care from a trained provider during delivery is recognized as critical for the reduction of maternal and neonatal mortality. Births delivered at home are more likely than births delivered in a health facility to be assisted by a health professional. The delivery attended by skilled personnel is referred as safe deliveries. Less than half of the births are safe in India. In urban areas more than three-quarters (76 percent) of deliveries were safe as against little less than two-fifths (37 percent) in rural areas. About half of the deliveries are safe for young women aged below 30 than to women above 30 years.

The proportion of safe deliveries decreases as parity rises 1 (66 percent) to 4 and above (24 per cent). Only 28 per cent of births to women from scheduled tribes are safe, compared to 40 per cent among Scheduled tribes, 48 percent among other backward classes, and 61 percent of births among women from the 'other' castes category. The percentage of safe deliveries increased substantially with women’s education and standard of living.
In India, a large proportion of the births (59 percent) take place at home. Only seven percent of the total deliveries, that took place at home, were assisted by midwifery trained persons i.e. doctor/nurse and ANM. Forty-seven percent of births were assisted by health personnel, including 35 percent by a doctor and 10 percent by an ANM, nurse, midwife, or LHV. More than one-third of births (37 percent) were assisted by a traditional birth attendant (TBA) and 16 percent were assisted by only friends, relatives, or other persons (DLHS–2002-04, 2006).

NFHS-3 gives more specific details. Only 4 per cent of home deliveries were attended by a doctor, and 7 per cent by ANM or nurse or LHV. Eleven per cent of births were attended by trained birth attendant, 51 per cent were attended by an Untrained Dai, 25 per cent were attended by relatives and friends and one per cent of home deliveries were not by any one.

The percentage of deliveries at home attended by health professional are more in urban areas (21 per cent) than in rural areas (11 per cent). The percentage of births attended by a health professional decreases steadily with increasing parity women home deliveries are more likely to be attendant by health professionals among women with a high standard of living (27 per cent) than among women with lower and middle, SLI.

Only 8 per cent of births to scheduled tribes, 10 per cent to scheduled Castes, 12 per cent to other backward classes and 16 per
cent births to women who belong to the ‘other’ caste category were attended by health professionals. Only 17 percent of births to women who belong to scheduled tribes were assisted by a doctor, compared with 47 percent of births to women who do not belong to a scheduled caste, scheduled tribe, or other backward class.

Six per cent of home deliveries to women who did not have any antenatal check-ups were attended by health professionals compared with 24 per cent of home deliveries to women who had four more antenatal checkups. About 11 per cent home deliveries that were normal were attended by a health professional.

About 13 per cent of home deliveries attended by a health professional with availability of health facility in the village compared to 9 per cent non-availability of health facility in the village.

**Antenatal Care Services**

Traditionally, little attention has been paid to women in the antenatal period, even traditional dais coming into the picture only at delivery. The maternal and child health programme seeks to address this period of neglect. Under this programme, all pregnant women are to be routinely followed up either in the health centre or at home, and provided immunization, iron supplementation and regular check-ups to monitor the pregnancy.

The available evidence on this programme however suggests that while antenatal are undoubtedly improves maternal and infant well-being; this service reaches few pregnant women. On the national
level, it is estimated that no more than 40-50 per cent of all regnant women in India receive any antenatal care at all (Singh and Paul 1988; Stars and Measham 1990; Acsadi and Johnos-Acsadi 1990). And fewer women are actually registered for antenatal care: only 21 per cent of all pregnant women in the rural sector and 47 per cent in the urban (UNICEF 1991 quoting NSS 1986-87). Local level sample surveys give a more disturbing picture of ANC service utilization and programme awareness (see also Gopalan 1989; Mathai 1989). A study of antenatal care services in Bihar, Rajasthan, Orissa, Maharashtra and Gujarat finds that MCH services hardly reached pregnant women: only between 5 and 22 per cent of all pregnant women in rural areas and between 20 and 50 per cent in urban areas (Kanitkar and Sinha 1989). These findings are reiterated by other studies in these and other states, including Uttar Pradesh, Bihar, Rajasthan (Khan and Prasad 1983; Mehta et al. 1983; Khan et al. 1988) and Punjab (Bhatinda district, Singh et al. 1988). It is only in Kerala where antenatal services are reported to have reached a large proportion of women (Khan and Prasad 1983; Mehta et al. 1983). Where visits do occur, they occur infrequently and their content is unclear (Jain and Agarwal 1986; Murthy et al. 1990). Whereas at least five antenatal check-ups are considered ideal, pregnant women who received antenatal care have rarely had more than one or two contacts and that, too only when halfway through the pregnancy (Gopalan 1989).

The reasons for this poor utilization of services are cultural and socio-economic on the one hand but also a result of poor quality of
services on the other. Kanitakr and Sinha (1989) observe that the large majority of women who did not utilize antenatal services considered it unnecessary. This could reflect the traditional notion that child bearing is not an even worthy of medical attention. It could also reflect dissatisfaction with the accessibility, quality, and effect of services; a disturbing minority cited such reasons as lack of knowledge and economic and transportation problems. All these factors underscore the need for concentrated mass education efforts, a stepped-up domiciliary visit schedule and a general improvement in the quality of services.

Women who have received antenatal care experience lower maternal and early infant mortality, fewer complication and higher birth weight. As far as maternal mortality is concerned, the study in Anantapuramu, A.P., observes significant differences in visits for antenatal care between women who had died and those who had survived childbearing. Of women who had died, only 16 per cent had at least one antenatal visit to the health centre, compared to 27 per cent among women who survived (Bhatia, 1988). As far as prenatal mortality is concerned, multicentric hospital study (Mehta and Jayant, 1981) found that two-third of all women who suffered a perinatal death had not received a single antenatal check-up; 30 per cent of all perinatal deaths (and half of all identifiable causes) are attributed to insufficient antenatal attention (Mehta, 1989). Antenatal care also affects birth weight; a study in Bombay (Ares et al., 1990) reports that 59 per cent and 69 per cent of women whose infants
weighed less than 2.0 and 2.5 kgs. Respectively had received antenatal care, compared to 86 per cent of those whose infants weighed 2.5 kgs or more.

The RCH programme services for antenatal care includes at least three antenatal care visits, iron prophylaxis for pregnant and lactating women, at least one dose of tetanus toxoid vaccine, detection and treatment of anaemia in mothers, and management and referral of high-risk pregnancies and natal care, that is encouragement of safe delivery, post-natal care, and management of unwanted pregnancies.

In India, the Reproductive and Child Health Programme includes that all pregnant women be registered in the first 12-16 weeks (Ministry of Health and Family Welfare, 1997). Accordingly, the first antenatal check-ups should take place at latest during the second trimester of the pregnancy. It also includes the provision that pregnant women must avail of at least three antenatal care visits, get at least one tetanus toxoid injection, and must take supplementary iron in the form of IFA tablets/syrup daily for 100 days.

During pregnancy, women received antenatal check-ups from multiple resources such health workers providing ANC at home, government health facility, private health facility.

**Components of Antenatal Check-ups**

Measurement of height, weight, blood pressure; test like blood, urine, examination of internals, abdomen are part of essential obstetric care or are required for monitoring high-risk pregnancies.
Fifty-eight percent of women were weighted, 60 percent had had their blood pressure checked, and 71 percent had an abdominal examination as part of the antenatal check-ups. Other common components of antenatal check-ups were blood test (61 percent), urine test (59 percent), and the measurement of height (28 percent), internal examination (39 percent), and breast examination (24 percent). About 25 percent of women had had a sonogram or ultrasound, 5 percent had had an X-ray and only three percent of women reported that they had an amniocentesis test. All of these measurements or producers were performed more often during antenatal check-ups in urban areas than in rural areas.

**Immunization**

Poor antenatal immunization result in neonatal tetanus. Tetanus is estimated to account for some 230000 to 280000 infant deaths each year, well over half of which occur in Bihar and Uttar Pradesh (Sokhey 1988; Singh and Paul, 1988, UNICEF 1991). Tetanus is held to account for anywhere between one-and-two-third of all neonatal death (Sokhy 1988; Singh and Paul, 1988; UNICEF, 1984; Kapil, 1980; Agarwal and Agarwal, 1987). Though, pregnant women are recommended two or more T.T. injections, at least one T.T. (Tetanus Toxoid) injection is required during the pregnancy.

Eighty percent of women received at least one tetanus toxoid injection. Coverage of TT injection is higher in urban areas (90 percent) than that in rural areas (77 percent). About 72 percent of the
women received two or more tetanus toxoid injections and 80 percent received at least one tetanus toxoid injection in villages where health facilities were available and the corresponding figures for women from villages without health facilities was 64 and 72 per cent respectively.

Nearly 69 percent of non-literate women received at least one tetanus toxoid injection, whereas 89 percent of literate women (who had around nine years of schooling) received at least one tetanus toxoid injections and 95 percent of women who had completed ten years or more of schooling received at least one tetanus toxoid injection.

Ninety-four percent of the women with a high standard of living received at least one tetanus toxoid injections for their last live/still birth, as compared to 71 percent of women with a low standard of living and 86 percent of women with medium standard of living. At least one tetanus toxoid injection was received by 88 percent women with parity-1 compared to 66 percent with parity-4 and above. Coverage of at least one tetanus toxoid injection is lowest among scheduled tribes (69 percent), followed by scheduled castes (78 percent), other backward classes (80 percent), and ‘other’ caste category women (86 percent).

Seventy-six percent of mothers received two or more tetanus toxoid injections during pregnancy for their most recent birth. Another 2 percent received one tetanus toxoid injection during the most recent pregnancy and one or more TT injections in the three years preceding
the most recent pregnancy. The proportion of mothers receiving two or more tetanus toxoid injections during pregnancy for the most recent birth is substantially lower than the national average among older mothers, mothers of higher-order births (six or more), mothers with no education, scheduled tribe mothers, and mothers in households in the lowest wealth quintile. Tetanus toxoid coverage increases with the education level of women and is considerably higher in urban areas (86 percent) than in rural areas (73 percent).

**Anaemia and IFA supplementation**

There exists in India a wide range of cultural practices regarding diet during pregnancy, both on how much hand on what to eat. Unfortunately these are unlikely to foster improvements in antenatal nutrition since they tend to discourage increases in women already meager average daily food intake (Ramachandran, 1989) and in such nutritional items as leafy vegetables during pregnancy. A village level study in Uttar Pradesh (Khan et al., 1988) suggests that even when women are aware of the importance of diet during pregnancy, cultural and economic priorities deny them access to better nutrition, one pregnant woman’s daily food intake was four chapattis, two dishes of vegetables and two cups of tea only. Another study in rural Uttar Pradesh (Tripathi et al., 1987) observes that weight gain during pregnancy was of the order of only 6.0-6.5 kg among poor nourished women and 8.1-8.3 kg among better nourished women.
As a result, anaemia is widespread among pregnant women (hemoglobin levels below 11 grams/dl); it is estimated to range from 40-50 per cent in urban areas to 50-70 per cent in rural areas (UNICEF, 1991; Kapil, 1990; Bhardwaj et al., 1990; Mathai, 1989), higher in such states as Bihar and Utter Pradesh (Agarwal and Agarwal, 1987) and almost 90 per cent in rural areas where hookworm infestation is endemic (Ramachandran, 1989). Hemoglobin levels tend to deteriorate in the course of pregnancy; compared to a mean level of 10.8 g/dl among non-pregnant women, hemoglobin levels fell steadily to 10.4 g/dl, 9.7 g/dl and 9.4 g/dl respectively in the first, second and third trimesters of pregnancy (Srikantia, 1989 a). Parity also affects hemoglobin levels; below 9 g/dl, the corresponding proportion among women with three or more pregnancies was over 42 per cent.

Thus, not only is anaemia a leading direct cause of maternal deaths, but it also contributes indirectly by aggravating other complications of pregnancy such as eclampsia, antepartum haemorrhage, sepsis and genitourinary tract infections. And not only does it affect mortality, but it impairs the health of many more women; puerperal morbidity tends to be 3-4 times higher in women with hemoglobin levels below 6.5 g/dl compared to normal women (Kapil, 1990). Consequences of maternal anaemia for infants are equally acute. For example, three-fifths of all infants born to women with haemoglobin levels less than g/dl were low birth weight, compared to one-quarter of those born to women with normal haemoglobin levels (Ramachandran, 1989); perinatal mortality rates
are ten times higher among severely anaemic women compared to normal women. A study in Uttar Pradesh that 62 per cent of infants born to women who gained less than 5 kg during pregnancy were low birth weight compared to 38 per cent among who gained 7-9 kg (Mathai, 1989). Links between low birth weight and early infant deaths are well known: low-birth-weight infant’s accounts for 70 per cent of all peri-natal deaths, 90 per cent of all early neonatal deaths and half of all infant deaths (Ramalingaswami, 1985; Singh, 1986).

Food and iron supplementation have been found to improve such maternal health attributes as weight gain, incidence of anaemia, complications during pregnancy and childbirth and birth weight (Dawn and Mitra, 1990; Iyengar, 1975). These findings have prompted a variety of strategies for supplementation the diets of pregnant women. The most ambitious of these is the Integrated Child Development Service (ICDS) programme, in which pregnant and lactating women are provided supplementary nutrition (500 kilocalories and 25 grams of protein) daily. Unfortunately, though this programme has been implemented for over a decade now, there is little information available on changes in reproductive health indicators in areas served by the programme. The little that is available from service statistics suggests that little more than half (51 per cent) of all pregnant and lactating women eligible for this supplementary nutrition actually receive it (Ministry of Welfare, Dept. of Women and Child Development, 1991). In some states, the situation is worse: for example, both ICDS reports and an assessment
of the utilization of ICDS services in Rajasthan (Jain and Agarwal, 1986) put this figure at 40 per cent.

The national anemia prophylaxis programme of iron and folic acid distribution, in which pregnant women are provided with 100 iron and folic acid tablets during pregnancy, was initiated as early as the 1950s. However, both service statistics and sample surveys confirm that this programme has not been very successful. From service statistics, were find that no more than an estimated one-third of all pregnant and lactating women (as estimated from population and birth rate figures for 1988089) have received iron and folic acid supplementation. Even more discouraging are the results of the few sample surveys on antenatal care, particularly in the four large northern states. A village level study in Utter Pradesh (Khan et al., 1988) observed that only seven per cent of all pregnant women received iron and folic acid supplementation (Compared to 26 per cent for the state as a whole as estimated from service statistics). A micro-level evaluation by the Indian Council of Medical Research has shown that the programme has had little effect on the prevalence of anemia among pregnant women (UNICEF, 1991); worse, there was little difference in the prevalence of anemia between those who were supplied the tablets (88.1 per cent) and those who were not (87.6 per cent). Reasons underlying this range from inadequate supplementation to low acceptance, to poor quality of tablets.
Nutritional deficiencies in women are often exacerbated during pregnancy because of the additional nutrient requirements of foetal growth, so a pregnant woman needs six times more iron than a non-pregnant woman.

Iron deficiency anaemia is the most common micronutrient deficiency in the world. It is a major threat to safe motherhood and to the health and survival of infants because it contributes to low birth weight, lowered resistance to infection, impaired cognitive development, and decreased work capacity. The provision of iron and folic acid (IFA) tablets to pregnant women to prevent nutritional anaemia forms an integral part of the safe motherhood services offered as part of the Reproductive and Child Health Programme in India.

65 percent of mothers received IFA supplements for their most recent birth. IFA coverage is well below average for older women, women with fourth or higher order births, women with no education, Muslim women, and women in households in the lowest wealth quintile. IFA coverage is also lower in rural areas (61 percent) than in urban areas (76 percent).

Overall, only 23 percent of women consumed IFA for at least 90 days. This percentage is universally low among all groups of women except women who have completed 12 years of education or more (56 percent) and women in households in the highest wealth quintile (49 percent).
Adequate amount of iron folic acid tablets/syrup (100 or more IFA tablets/syrup) were received by only 20 percent of women, which is much higher in urban areas (30 percent) than in rural areas (17 percent). Women with a high standard of living index were more likely to receive an adequate amount of IFA.

Women with higher parity and from scheduled caste and scheduled tribe background were less likely to received adequate amount of IFA.

**Full ANC**

Women who received at least three antenatal check-ups, and at least one tetanus toxoid injection and supplementary iron in the form of iron folic acid tablets/syrup daily for 100 days during their pregnancy as recommended by the RCH programme alone are considered to have received full antenatal care.

Only 16 percent of the women in India received full antenatal care. As expected, the coverage of full antenatal care is very low for non-literate women, women with higher parity, Muslim women, women from scheduled tribes and women with a low standard of living.

Full antenatal coverage is also much lower in rural areas (13 percent) than that in urban areas (26 percent). Non-literate women received full antenatal care for 8 percent of their last birth, whereas 20 percent of literate women (who had completed 9 years of schooling) and 35 percent of women who had completed ten years or more of
schooling had received the full package. Eight percent of women with a low standard of living received full antenatal care for their last live/still birth, as compared to 20 percent of women with medium and 33 percent of women with a high standard of living.

The coverage varies inversely by parity. About 24 percent of women received the full course of antenatal care with parity-1 compared to only 6 percent with parity-4 and above. Only 12 percent of women from scheduled tribes and schedule castes were received antenatal care compared to 16 percent of women from other backward classes and 21 percent of ‘other’ caste category.

Antenatal care utilization in India varies greatly by state. For some indicators the variation ranges from only marginal coverage to almost complete coverage. For example, the percentage of women who had three or more antenatal care visits ranges from only 17 percent in Bihar to 96 percent in Tamil Nadu. In general, the southern and western states and some of the northern states perform uniformly well. Bihar, Rajasthan, Uttar Pradesh, and Jharkhand are large states that perform uniformly poorly. The performance of states in the Northeast Region is mixed; notably, however, except for Sikkim and Manipur, the percentage receiving tetanus toxoid injections is below the national average in all of these states.

ANC Visits

In India, half of the pregnant women received at least three antenatal check-ups and 38 percent had four or more check-ups.
Seventy two percent of women in urban areas received three antenatal check-ups compared to only 42 percent of women in rural areas. The availability of a health facility in the village has made a significant difference to have a minimum three visit for antenatal check-ups. About 48 percent of the women received three or more antenatal check-ups when the health facility was available in the village compared to 37 percent of women for whom health facilities were not available in the village.

Data on the timing of first antenatal check-ups shows that 40 percent of the women received their first antenatal check-up in the first trimester of pregnancy, and 26 percent received their first check-up in the second trimester and the remaining 7 percent of women received their first check-up in the third trimester.

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**Place of ANC**

33 percent of women received antenatal check-ups at a government health facility; including 10 percent through the primary health centre and 9 percent through the sub-centre, and 30 percent received antenatal check-ups at a private health facility. Other than this, 5 percent of women reported that they had received antenatal check-ups at an Indian system of medicine, either government or private.

Younger women were more likely to receive antenatal check-ups at government health facilities. Around 33-36 percent of women age below 30 years received an antenatal check-up at government health facilities than 22-29 percent of the women age 30 and above. Thirty-one percent women from rural areas availed government health facilities for antenatal check-ups that were lower than women in urban areas (37 percent), and also a high proportion of women (46 percent) from urban areas avail health facilities for antenatal check-ups than women from rural areas, younger women aged 15-19 years, women of scheduled castes and scheduled tribes and women from low standard of living households received antenatal check-ups at sub-centre and primary health centres. A comparatively high proportion of women who had received antenatal check-ups at government health facilities are literate below high school, 68 percent of rural women received some kind of antenatal check up. The **availability of health facility** in the village has a direct impact on any antenatal check-up,
73 percent of women staying in villages with health facilities received any antenatal check-up as against 63 percent of women belonging to villages where there were no health facilities. It was observed that 9 percent of women received antenatal care at the doorstep in those villages where health facility was not available than only 7 per cent of women from those villages with availability of health facilities. About 37 per cent was from urban areas utilized government health facility for antenatal check-ups, whereas it was 31 per cent from urban areas utilized government health facility for antenatal check-ups. Whereas it was slightly higher among women, who could avail themselves availability of health facilities within the villages.

Antenatal coverage in Tamil Nadu, Kerala, Lakshadweep, Pondicherry, Andhra Pradesh, Dadra and Nagar Haveli, Daman and Diu, Goa, Andaman and Nicobar Islands were 95 per cent or more whereas less than 10 percent of women received antenatal check ups by ANM/Nurse in Kerala, Goa, Lakshadweep, Arunachal Pradesh, Bihar, Tripura, Nagaland, Delhi, Andhra Pradesh, Jammu and Kashmir, Manipur, Assam and Jharkhand.

Reasons for not seeking Antenatal Check-Ups

Fifty-seven percent of the women stated that it was not necessary to have an antenatal check-up. It was surprising to see that a higher proportion of urban women (63 percent) than rural women (58 percent) felt that it was not necessary to have an antenatal check-up. Fifty nine percent of women from villages, which had health
facilities, stated that an antenatal check-up was not necessary while, it was 55 percent of women from those villages where a health facility was not available. About 7 percent of the women felt that it was not customary to go for antenatal check-ups. Other factors contributing to non-use of antenatal care were that it costs too much (13 per cent), it was situated too far, or there was not transportation (4 per cent) and family did not allow (7 per cent) to avail of antenatal care, not time to go (5 per cent), and another 9 per cent reported lack of knowledge of these services. Only one per cent women reported ‘poor quality of services’ as the main reason. The figures for those who did not avail an antenatal check-up were nearly the same in urban areas and in rural areas. Six per cent of women from villages with a health facility reported that they had no time to go, and the same number of women reported that their family did not allow them to have antenatal check-ups.