CHAPTER II
REVIEW OF LITERATURE

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CHAPTER II

REVIEW OF LITERATURE

This chapter deals with the existing literature on the knowledge about menstruation, safe hygienic practice during menstruation, antenatal care, complications during pregnancy, risk of early child bearing, reproductive health problems, family planning practices and awareness on sexually transmitted diseases. The review gives a clear perspective of the overall situation of adolescent mothers comparing results of the past studies in the context of present research.

2.1 Menstruation

Adolescence in girls is a turbulent period, which includes stressful events like menarche, considered as a landmark of female puberty. One might expect that menarche will be positively received by young women; however negative responses such as shame, fear, anxiety and depression are more common. The manner in which a girl learns about menstruation and its associated changes may have an impact on her response to the event of menarche. Myth, mystery and superstition have long enveloped the facts about menstruation. In India even mere mention of the topic has been a taboo in the past and even to this date the cultural and social influences appear to be hurdles for advancement of the knowledge of the subject. The social practices about menstruation make a girl child feel subnormal and may hamper her development. Menarche may remain a traumatic event for her unless she is prepared for it (Deo and Ghattargi, 2005).

Menarche is the starting point of the reproductive process among women and thereby, the onset of menarche is considered an important event in the life of an adolescent girl. Since then there would be menstrual cycles among them, and most of their activities are closely monitored and at times even restricted during the periods of menstruation. Further, the hygienic practices followed during each menstruation would be crucial to keep their reproductive health in a better way, which in turn affects their overall health. However, there are several obstacles to observe healthy practices during menstruation. First of all,
menstruation is still considered, especially in rural areas, as something dirty and thereby, girls are advised to restrict themselves to a particular place in the house during menstruation and also curb their movements at the community/society level. Moreover, adolescent girls, generally, may not have much awareness about menstruation and related issues before they experience it, since such knowledge is mostly not imparted in schools. Of course, mothers, by and large, are the major sources, but mostly talk to their daughters about it only after menarche and mostly impart traditional practices to be adhered during menstruation period rather than modern aspects like cleaning perineum on regular intervals with clean and/or hot water, use of sanitary napkins, etc. (Audinarayana et al., 2005).

A study on reproductive health awareness of young women in Tirupati, India showed that very few young women had correct knowledge of why menstruation occurred. Similarly their understanding of menstrual cycle was also poor. 64 per cent did not know exactly how and where a baby was conceived (Hari et al., 1995).

In a study on "Menstrual Hygiene Among Rural Adolescent Girls" majority of girls (43/65) said that menstruation was a physiological process, but 12 said that it was a curse of God, 4 said that it was due to sin, 5 believed that it was a disease and one girl did not respond. Thirty three girls said that menstruation was due to a hormonal process, while 18 said it was due to weight gain in the body, and 14 did not respond (Devi Drakshyani, and Venkataramiah, 1994).

A study on awareness of pubertal changes among adolescent girls revealed that girls were unaware of the body changes (physical) at puberty and the onset of menstrual cycle. A large proportion of them were not aware of the physiological process of menstruation, such as ovulation and shedding of the female egg cell and uterine lining every month (Abha Ahuja and Sarita Tewari, 1995).

A study among adolescent girls in South India reveals that even after the attainment of menarche, very little information is given to young girls about the physiological processes involved and the hygienic practices to be followed (Narayan et al., 2001). Awareness among female adolescents about
menstruation and other changes at puberty tends to be patchy at best. This is particularly true among young adolescents, 50 per cent of those aged 12-15 did not know about menstruation (Rasheed Khan and Zaheer, 1978). A study conducted in rural Maharashtra revealed that two in five menstruating girls knew nothing about it until its onset (Vlasoff, 1978). Some studies on Indian women have found that young girls are generally told nothing about menstruation until their personal experience of it (George, 1994).

Another study conducted in both rural and urban areas of Bangladesh among adolescents of 10-19 years found that out of 232 girls only 34 per cent knew of menstruation before experiencing it and as a result experienced with mental trauma (Nahar et al., 1999). Another study found that only 65.8 per cent girls had information about the onset of menses before it started (Gupta and Jain, 1998). A study conducted by UNICEF also found that 38 per cent of the girls were not aware of the menstruation at the time of their first period (UNICEF).

The studies conducted in different parts of the country indicate mothers and peers as the major source of information on menstruation (Gar et al., 2001; Gupta and Jain, 1998).

A study conducted in urban slums of Delhi found that of the 380 women, 29 per cent were using sanitary napkins or new cotton, the rest were either using old or worn cloths (Gar et al., 2001).

Studies indicate that the level of information about menstruation, genital hygiene and related reproductive health issues are gradually increasing but it appears to be a very slow process (Narayan et al., 2001). A study on menstrual practices among adolescent girls in India found that the majority (52.5 per cent) of urban girls were using commercially available sanitary napkins and 70.7 per cent of rural girls were using simple clothes during menstruation, 19.2 per cent of them are reusing them (Bhatia et al., 2001).
It was found that nearly half of the adolescent women in the studies had no information about menstruation before it began (Akther 1998, Akther et al., 2000). Another study found that over half of the married adolescents in the study were unaware of the causes of menstruation (Barkat et al., 2000).

It was indicated that a significantly large proportion of girls were not aware of menstruation when they first experienced it. Mothers, sisters and friends were found to be the major source of information (Anoop Khanna, et al., 2005).

A study on the need of awareness generation regarding a component of reproductive and child health programme in the slums of Howrah Municipal Corporation showed that 8.75 per cent of lower age group did not know the use of clean cloth or any cloth during menstruation. Older girls use sanitary napkins more than younger one. (Haidar et al., 2004).

A study on "menstrual hygiene among rural adolescent girls" revealed that almost all (64/65) girls used old cloth as menstrual absorbent, 1 used cotton absorbent. Fifty one said they used clean cloth, 10 used boiled and dried cloth and 4 gave no response. 25 of 65 reused the cloth for more than one menstrual cycle. (Devi Drakshyani and Venkataramiah, 1994).

Approximately 52 per cent of post pubertal females suffer dysmenorrhea, and about 10 per cent of them are incapacitated for 1-3 days per episode. The authors assessed the prevalence of this condition and its level based upon working ability in a house-to-house survey of 300 young women aged 11-18 years living in a rural area of south Delhi. 70.8 per cent experienced dysmenorrhea. 29.9 per cent of the girls with dysmenorrhea did not require an analgesic during menstruation and their condition did not affect their ability to work, 52.6 per cent had menstruation with mild pain, 11.3 per cent required an analgesic and their ability to work was moderately affected, and 6.2 per cent were unable to work even after taking analgesics. The mean age of menarche was 12.8 years among girls with dysmenorrhea compared to 13.3 years among girls without the condition. Dysmenorrhea was significantly correlated with mean duration of menstrual flow with reportedly high use of sanitary pads (Aggarwal et al., 1997).
A study on "socio-cultural implications of menstruation and menstrual problem on rural women's lives and treatment seeking behaviour" indicates that 21 per cent of them suffered from menstrual problems. The reported symptoms are excessive bleeding, scanty flow, irregular cycle and extreme pain. Menstrual problems are perceived as serious and women seek prompt medical treatment from private and government doctors (Joshi et al., 1990).

A study on reproductive health problems of women in rural Uttar Pradesh shows that 6.1 per cent reported having menstrual problem. 33 per cent had excessive bleeding, 27 per cent had occasional bleeding and 20 per cent had continuous bleeding for 10 days or more. About half of the women, reporting menstrual problems had taken treatment. Treatment seeking behaviour by types of menstrual problems revealed that a somewhat higher proportion (54 per cent) of women with excessive bleeding than those with occasional bleeding (42 per cent) had sought treatment. The treatment was mostly sought from the private sector. Only around 4 per cent of those who had menstrual problems sought treatment from the public sector (Bella C. Patel and Khan, 1996).

A study on reproductive health problems and help seeking behaviour among adolescents in Mumbai, India mainly reported problems related to menstruation, excessive vaginal discharge, itching of genitals and urinary complaints. A few girls reported minor problems like acne, height and weight concerns, skin and general health problems (Joshi et al., 2006).

The prevalence of menstrual problems by specific symptoms among rural women in Maharashtra, India shows that among one fourth of the women suffering from anyone of the menstrual problems, nearly half of them are suffering from painful periods (45 per cent) followed by scanty bleeding (39 per cent) delayed periods (29 per cent) and excessive bleeding (14 per cent) (Saurabh Singh, 2006).
A study on perceptions and practice with regard to reproductive health in rural areas of Salma and Rewa districts of Madhya Pradesh, India shows that 73.87 per cent did not have any genital problems, while 26.12 per cent some problems, mainly abnormal menstrual cycle and itching and pain during urination (Kushwah and Mittal Anuj, 2007).

Most of the studies reviewed in this section indicate that almost all the adolescent mothers had less knowledge about menstruation process and experience of physiological discomforts during menstruation. Practice of menstrual hygiene is less and treatment seeking behaviour for physiological problem is also less among adolescent mothers.

2.2 Antenatal care

Through a house-to-house survey, 455 married adolescent women (<20 years) and 455 married women aged 20-45 years from squatter areas in Alexandria were interviewed. Determinants of early marriage were consanguinity, illiteracy and unawareness of reproductive health. Of the currently pregnant adolescents, 22 per cent were receiving antenatal care compared to 40 per cent of the older women. Family planning methods were currently being used by 39 per cent of the adolescents and 63 per cent of the older wives. Determinants of non-use were: adolescence, illiteracy and previous miscarriage/stillbirth. There is a need to increase public awareness of reproductive health and change the behaviour of both groups of women in this under-privileged sector (Sallam et al., 2001).

A study on the outcome of pregnancy shows that the percentage of pregnant women attending Antenatal Care (ANC) is low even in urban areas, where health facilities are within easy reach, pregnant adolescents attend antenatal facilities at lower rates than adult women (Adhikari and Amatya, 1996).

A study on health consequences of adolescent child bearing in developing countries concluded that primi parity continued, growth during pregnancy, quality of obstetric antenatal care and poor socio-economic status are major risk factors associated with poor outcomes of adolescent pregnancy (Kruz, 1997).
Another study conducted in Bangladesh shows that young women were not aware of the need of medical care during pregnancy or delivery. They had little idea about what to expect during pregnancy and delivery, and only vague ideas about possible complications (Syeda Nahid and Chowdhury, 2003).

A study on some aspects of reproductive and child health care among teenage mothers, from NFHS-2 data shows that there exists variation in the teenage mother’s pregnancy and non-pregnancy status, utilization of antenatal care services and post natal care services. The socio-economic and demographic characteristics among teenage mothers of the two status, shows that there exists strong association between the utilization of antenatal care services and post natal services with some of the socio-economic and demographic variables (Srivastava et al., 2004).

Most of the studies reviewed in this section shows that adolescent mothers had less antenatal care due to lack in knowledge.

2.3 Complications during pregnancy

Pregnancy among adolescents is a health risk for the mother as well as the fetus. It is associated with high maternal morbidity and mortality (Sharma et al., 2003).

A study aimed to explore the strategies used by adolescent girls living in urban Accra, Ghana to cope with unintended pregnancies examines the processes leading to pregnancy and compares the strategy of terminating a pregnancy with that of carrying the pregnancy to term. The study was initiated in response to findings from the 1998 Ghana Demographic and Health Survey (GDHS) indicating that early pregnancy loss among girls aged 15 to 19 was twice as high as that of other age groups, and pregnancy loss among urban teens was twice that of rural areas (Henry and Fayorsey, 2002).

A study on determinants of poor pregnancy outcomes among teenagers in Sweden shows that adolescent pregnancies are associated with increased incidence of medical and obstetrical complications including anemia, pregnancy, induced hypertension and pre-maturity (Olausson et al., 1997).
A study on determinants of adolescent reproductive problems in Kenya shows that 31.5 per cent had high blood pressure, 29.2 per cent had prepartum and post-partum hemorrhage, 28.6 per cent experienced obstructed labour and 27.2 per cent had low birth weights (Kennedy N. Ondimu, 1997).

In developing countries over 50 per cent of pregnant women suffer iron deficiency anemia. It is also prevalent among adolescent girls because the growth spurt and onset of menstruation increase iron requirements (Lynch, 2000).

In a retrospective case-control study conducted at Indira Gandhi Medical College in Shimla, India, in 1992-93, obstetric outcomes were compared in 80 pregnant adolescents 19 years of age and younger and 80 pregnant controls 20-30 years old matched for parity. 87.5 per cent of women in both groups were primiparas. The adolescent pregnancy rate at the study site during the one year study period was 3.2 per cent. Complications such as anemia (27.5 per cent), pregnancy-induced hypertension (15 per cent), and intrauterine growth retardation (27.5 per cent) were significantly higher among pregnant adolescents than among their older counterparts (11.2 per cent, 8.7 per cent, and 8.7 per cent, respectively) (Pal et al., 1997).

The risks associated with pregnancy and its outcome among primi gravida adolescent and adult pregnant women were compared. There were 64 adolescent and 175 adult primigravida in a cohort of 843 antenatal women. Mean age of conception in adolescents and adults was 18.46(±0.56) and 21.69(±1.96) respectively. Complications of pregnancy were more common among adolescents. Home delivery was two times more common among adolescents. Abnormal presentation and prolonged labor was more common among adolescents but instrumental delivery and caesarean section was more in adults. Pregnancy wastage was 17.5 per cent and 3.5 per cent among adolescents and adults respectively. This study supports earlier findings of risks associated with pregnancy in adolescents. (Sharma et al., 2003).

The prevalence of anemia in 504 adolescent girls (10-18 years) representing 24 sub-centre villages of Dauraia block of Meerut was 34.5 per cent. The prevalence of mild, moderate and severe anemia among adolescent girls was
19.0 per cent, 14.0 per cent, and 1.4 per cent, respectively. Majority (55.2 per cent) were having mild anemia and only 4.0 per cent had severe anemia. Anemia was found to be significantly associated with educational status, birth order, awareness regarding anemia) and marital and obstetric status with no association with age, anthropometry and menarchial age (P>0.05) (Rawat et al., 2001).

In rural Tamil Nadu, India, a baseline survey on the prevalence of anemia among adolescent girls was conducted by the Christian Medical College and Hospital. The respondents include 155 young girls aged 13-19 years old from the K.V, Kappa block and 161 from the Gudiyatham block. Their blood was extracted to assess hemoglobin (Hb) concentration. The other data obtained include demographic variables, socioeconomic and nutritional status. Results indicated that prevalence of anemia among girls was 44 per cent. Of these, 2.1 per cent was severe, 6.3 per cent moderate, and 36.5 per cent mild anemia. Prevalence of anemia exists in 40.7 per cent of pre- and 45.2 per cent in post-menarchial girls. It is noted that the education levels of respondents and their mothers had significant association with the concentration of Hb. (Rajaratnam et al., 2000).

A study conducted on health profile of pregnant adolescents among selected tribal populations in Rajasthan, India shows that, 59 per cent were found to be primigravida, 30 per cent were pregnant for the 2nd time, and 2 girls were pregnant for the 3rd time. A majority were illiterate (n = 46), and almost all of them were found to be suffering from moderate-to-severe anemia (n = 51). Similarly, a large majority (n = 46) had a body mass index (BMI) less than normal, and body weight less than 42 kg. 2 of the pregnant girls were also found to be suffering from pellagra, while approximately 1/3 of the girls had vitamin A deficiency - (Sharma and Sharma, 1992).

Opinions vary in pregnancy outcome of teenage mothers but many think that teenage constitutes a high risk group of pregnancy requiring high priority services. In our institution incidence of teen age mothers coming for delivery is around 11 per cent. The study deals with 400 cases of teenage mothers admitted for delivery with 400 control cases between the age group of 20 to 29 years of age. Number of women who had received some antenatal care in
both groups was almost same. Incidence of anemia was not very different. Toxemia of pregnancy was present in significantly more women of younger age (P value <0.005). In general caesarian section rate was similar but 73.68 per cent patients of breech presentation needed caesarian section amongst teenagers. Duration of labour was more in these women (mean duration 17 hrs and respectively). Incidence of low birth weight babies was 11 per cent and perinatal loss 77.5/1000 births. Teenage mothers seem to be at higher risk of child bearing with high perinatal risk (Chhabra, 1991).

A study on health of adolescents and youth shows that adolescent pregnancies are usually problematic, because they occur before a young woman has reached full biological, physical and emotional maturity. As a consequence, adolescents face a number of problems which include anemia, retardation of fetal growth, premature birth and complications of labour pregnancy of a girl who is still growing means an increase in nutritional requirements, not only for growth of the foetus but also for the mother herself (Friedman, 1985).

Hospital based studies from Nepal have shown an association between teenage pregnancy, pregnancy-induced hypertension and anemia. The same studies found that fetal loss and abnormal deliveries were higher among teen mothers (Malla and Shrestha, 1996).

Complications of pregnancy were more common among adolescents. Home delivery was two times more common among adolescents. Abnormal presentation and prolonged labour was more common among adolescents (Sharma et al., 2003).

The experience of early and closely spaced childbearing is particularly risky for adolescents because large proportions are anemic and may not have reached physical maturity. Nearly 15 per cent of ever-married adolescent women were stunted and about one-fifth had moderate to severe anemia. The extra nutritional demands of pregnancy come at the heels of the adolescent growth spurt, a period that itself requires additional nutritional inputs. Any short fall could result in further depletion of the already malnourished adolescent (3< jeebhoy, 2000).
A study on risks of teenage pregnancy shows that higher levels of pregnancy related complications including eclampsia, pregnancy induced hypertension, intrauterine growth retardation and premature delivery among adolescents than among older women (Pachauri and Jamshedji, 1983).

A study conducted on nutritional status and outcome of pregnancy in young (below 21 years) and old mothers (above 27 years) in Mumbai, observes that energy and iron intakes of both groups were similar, pregnancy weight and weight at 38 weeks of gestation were higher among older mother as was Body Mass Index (BMI). Both systolic and diastolic blood pressures were similar in two groups. Hemoglobin per cent was higher in older mothers. Babies born to older mothers had higher birth weight (Pallavi et al., 2002).

Motherhood at a very young age entails a risk of maternal mortality that far exceeds the average, and the children of young mothers tend to have higher levels of morbidity and mortality. Early childbearing continues to be an impediment to improvements in the educational, economic and social status of women. It is also known that contraceptive use among married adolescents is noticeably lower than among older women (Gubhaju, 2002).

Association between teen pregnancies and reproductive health risk is examined on data drawn from a population-based representative sample of 4676 currently married women chosen for National Family Health Survey-II undertaken during 1998-99. The study has brought out occurrence of a considerable proportion of teen pregnancies in TamilNadu. Those who experienced first pregnancy under age 17 years account for 31.69 per cent and the proportion of teen-age pregnancies to the total pregnancies experienced by the sample respondents was 34.42 per cent. It shows that there was a strong association between early pregnancy and reproductive loss (still birth, miscarriage and abortion etc). Teenage pregnant girls reported some health problems and pregnancy complications that were found to be age-specific when compared to pregnant women in 20 and above ages. The study results indicate more probability of pre-maturity, low birth weight, congenital deformation among children born to teen-age girls. There children easily fall in the prey to diseases (Ravishankar et al., 2004).
A study on prenatal care and maternal health during adolescent pregnancy, shows that iron-deficiency anemia is particularly common among pregnant women adolescents are more likely than older women to be anemic, even in developed countries. For example, an analysis of eight US clinical studies found that pregnant women under age 20 were twice as likely to be anemic older women (Scholl et al., 1994).

A study on determinants of pregnancy in adolescents in Nepal shows that seventy adolescent pregnant women were compared with seventy primi gravida women in the 20 to 29 years age group. The teenage pregnant women were less educated, had poor economic background, more likely to have accidental pregnancies as compared to the other group and more likely to have love marriages. Husbands were more likely to decide about continuation of pregnancy. They had less psychological and social support from the family (Arun K Sharma et al., 2002).

A study on reproductive morbidity and health seeking behaviour of adolescent women in rural India shows that at least 60 per cent of women reported some or other problem during pregnancy. Around one third of the episodes were reported to be weakness or dizziness during pregnancy and in around one fifth of cases women suffered from some vision problem and convulsions. 14.3 per cent of cases were reported to have swelling of hands and feet and 11.4 per cent of anemia (Abilasha Sharma, 2003).

Most of the studies reviewed in this section shows that all most all the adolescent mothers had experienced one or more complications during their pregnancy period due to biological and physiological immaturity.

2.4 Risk of early child bearing

Child bearing can have adverse effects for both the adolescent mother and her baby due to biological and physiological immaturity (Atwood and Hussein, 1997).
Numerous studies have reported that children born to teenage mothers experience greater health problems and mortality risks than do those of older mothers (Haaga, 1989; Wulf and Singh, 1991).

Young women lack experience and tend to be psychologically mature and emotionally stable, leading to poorer maternal and child health care and infant feeding behaviour (Senderowitz and Paxman, 1985). Evidence shows that pregnancies occurring during the teenage years and birth intervals of below 24 months are known to be associated with higher risk of maternal mortality and morbidity (Basu, 1992).

A retrospective study of teenage pregnancy and labour at Durapur shows that maternal deaths are much higher among adolescents than older women. A reproductive health study of nearly 11,000 pregnancies over 5 year period in India showed that maternal mortality was almost four fold higher and prenatal mortality seven fold higher among women below 20 years than among those over 30 years (Mishra and Dawn, 1989).

A study on "Health status" of mothers and their children shows that children born to teenage mothers are also at higher risk of infant and child mortality (Mahmud and Islam, 1999). Another study found that most of the married adolescents were illiterate and housewives. They were at twice the risk of spontaneous abortion, four times the risk of combined fetal death and infant mortality, and twice the risk of losing pregnancies any time during their childbearing years. They remained at high risk of poor pregnancy outcome throughout their reproductive lives (Shawky and Milaat, 2000).

Pregnancy at a young age further exacerbates their own poor reproductive health and the poor survival chances of the infants they bear (Jejeebhoy, 1998). Child bearing in India is concentrated in the age group of 15-29, which contributes more than three fourths of total fertility. Current fertility is characterized by a substantial amount of early child bearing. About 17 per cent of total fertility is accounted for by births to women aged 15-19 years (NEHS, 1992).
Another study on adolescent's reproductive health in Nepal indicates that substantial proportion of population falls under adolescent and youth and there is high fertility rate among them. The analysis of marriage, successive birth, lower age at first child, short birth interval and pregnancy termination show the situation of the adolescents and youth is alarming and vulnerable (Pant, 2001).

It is generally accepted that child-bearing among women aged 15-19 doubles the risk of death due to pregnancy-related causes compared to women in their twenties (Population Reference Bureau, 2000).

A study on the perils of adolescent pregnancy shows that Married adolescent girls are exposed to the risk of pregnancy early in life. It is reported by several researchers that pregnancy among adolescents is associated with maternal complications, premature birth, low birth weight, prenatal mortality and increased infant mortality (Mapanga, 1997).

A study on prenatal care and maternal health during adolescent pregnancy reported that teenagers were at increased risk of maternal anemia, pre-term birth and caesarean delivery (Scholl et al., 1994).

Maternal mortality rates are particularly high for adolescent girls due to a possible combination of factors such as poor nutrition, early marriage, high fertility and early child bearing. In general, young adolescents are twice as likely to die as women older than 20 from pregnancy related causes (Metha, 1998).

Fifty per cent of adolescent girls aged 15-19 years are already married, resulting in early conception and high risks of maternal mortality (The South Asia Conference on Adolescents, UNFPA, 1999).

The Demographic and Health Survey (DHS) indicates that early pregnancy loss among girls age 15 to 19 was twice as high as that of other age groups, and pregnancy loss among urban teens was twice than that of rural areas (Henry and Fayorsey, 2002).
Up to 15 per cent of births among teenage mothers occur before they have achieved full physical development, adversely affecting their general health, damaging their reproductive organs, and sometimes causing death. The mortality rate among adolescent mothers and their children is twice than that of older mothers and their children (Adolescent Education Newsletter, 2000).

The traditionally early onset of marriage and childbearing in India has disturbing consequences of maternal health. The mean age at marriage is very low, and cultural pressures make adolescents marriage synonymous with adolescents childbearing. Over one in six women aged 13-19 had already commenced childbearing, often before full physical maturity was attained (Ranjan and Parasuraman, 2005).

The social and economic consequences for an adolescent of having a baby will depend on her particular culture, familial and community setting; the physical or health consequences for the mother and her child are more universally recognized as problematic (Buvinic and Kurz, 1998).

The evidence suggests that pregnancy and childbearing occur before many adolescents are physically fully developed and may expose them to particularly acute, health risks during pregnancy and child birth. Adolescent fertility rates are high; roughly 107 births take place per 1000 girls aged 15-19 years and the fertility of this age group makes up to 19 per cent of the nations total fertility rate (UPS and ORC Macro, 2000).

It is estimated at the global level that girls aged 15-19 are twice as likely to die from childbirth as are women in their twenties, while girls younger than age 15 face a risk that is five times higher (United Nations, Children's Fund, 2001).

Moreover more adolescent girls die from pregnancy-related causes than from any other causes (Population Reference Bureau, 2000). Evidence from community and facility based studies reiterate that maternal deaths are considerably higher among adolescents than older women.
A national study conducted by the Indian Council of Medical Research (ICMR) of 43,550 women in 10 facilities reports that maternal mortality among adolescents was 645/1,00,000 live births, compared to 342/1,00,000 in adult women aged 20-34 years (Krishna, 1995).

Similarly, a study in Mumbai indicates that while the maternal mortality ratio among women aged 20-29 was 138 per 1,00,000 live births, adolescents experienced considerably higher ratios 206 per 1,00,000 live births (Pachauri and Jamshedji, 1983).

At the national level in 1992-93, the neonatal mortality rate was 70.8 per 1000 live births among the infants of adolescent mothers compared to 44.8 among those of women aged 20-29 years (International Institute for population Science, 1995).

The neo-natal mortality rate was 63.1 per 1000 live births among infants of adolescent mothers compared to 40.7 among women aged 20-29 (UPS and ORC Macro, 2000).

Pregnancy at an early age, before the adolescent is physically fully developed, can result in severe damage to the reproductive tract (Ramachandran, 1989). Elevated risks of maternal mortality, pregnancy complications, prenatal and neonatal mortality and low birth weight (Jeejebhoy and Rama Rao, 1995).

Adolescents are also more likely to experience adverse pregnancy outcomes than older women are for example, the national family health survey reports that ten per cent of all adolescent pregnancies end in miscarriage or still birth compared to seven per cent among older women (NFHS-II, 1998-99).

The results of the studies discussed in this section revealed that more than half of the adolescent mothers had experienced adverse pregnancy outcomes.
2.5 Outcome of adolescent pregnancy

The NFHS observes that births to mothers less than 20 years of age at the time of delivery are more likely than other births to result in complications to the mother. Likewise, a hospital based study in Mumbai reports that compared to women aged 20-29, adolescents experienced more difficulties in the ante and intranatal periods. And chances of fetal wastage are increased: the NFHS, for example, reports that 7.3 per cent of pregnancies among aged 15-19 resulted in a spontaneous abortion, compared to 4.5 per cent in the general population. Similarly, adolescents in a hospital based study experienced higher rates, compared to women aged 20-29, of spontaneous abortion (158 and 77) and still birth (35 and 29) (Ranjan and Pararsuraman, 2005).

A study on teenage pregnancy outcome in Nagpur, India showed the proportion of low birth weight babies to be significantly greater in teenagers. Though there were more stillbirths and preterm deliveries with teenagers, the differences were not statistically significant. Similarly, adults had greater frequency of toxemia, premature rupture of membrane, placenta previa, and accidental hemorrhage, but the differences were not statistically significant (Ambadekar et al., 1999).

In a retrospective case-control study conducted at Indira Gandhi Medical College in Shimla, India, in 1992-93, obstetric outcomes were compared in 80 pregnant adolescents 19 years of age and younger and 80 pregnant controls 20-30 years old matched for parity. 87.5 per cent of women in both groups were primiparas. Forceps delivery was more frequent among adolescents (17.4 per cent) than controls (6.2 per cent). The only stillbirth was to an adolescent mother. There were no maternal deaths (Pal et al., 1997).

A study on perinatal morbidity and mortality among adolescent pregnancies in the semi-urban population of Gorakhpur showed 19 (7.8 per cent) of adolescent pregnancies were in the maternal age group less than 15 years and 110 (45.5 per cent) and 113 (46.7 per cent) pregnancies were in the age group 15-17 years and 17-19 years, respectively. The incidence of low birth
weight (LBW) babies was 67.3 per cent of all live births. Infections during the neonatal period, congenital anomalies, and birth injuries were seen in 21.6, 8.6, and 13.1 per cent of newborns, respectively. The neonatal mortality rate was 136.2/1000 live births. The adolescent mothers died during pregnancy or the puerperium due to pregnancy-related causes. The incidence of LBW, neonatal and maternal morbidity, and mortality associated with adolescent pregnancies were significantly higher (Kushwaha et al., 1993).

A study on 400 cases of teenage mothers admitted for delivery in a hospital with 400 control cases between the age group of 20 to 29 years of age found that the number of women who had received some antenatal care in both groups was almost same. Incidence of anaemia was not very different. Toxaemia of pregnancy was present in significantly more women of younger age (P value <0.005). In general caesarean section rate was similar but 73.68 per cent patients of breech presentation needed caesarean section amongst teenagers. Duration of labour was more in these women (mean duration 17 hrs and respectively). Incidence of low birth weight babies (2 kg.) was 11 per cent and perinatal loss 77.5/1000 births. Teenage mothers seem to be at higher risk of child bearing with high perinatal risk. Pregnancies should be discouraged not only for this but for limitation of fertility and other social reasons (Chhabra, 1991).

Health status of children in India shows that health risks to both mother and child increase when children are born to very young mothers. 19 per cent of births in India take place in the 15-19 year age group. There is a higher incidence of premature births and LBW infants born to young mothers (Tejal Barai and Jaitly, 2002).

It was observed that the mean birth weight of the new born was found to be significantly increasing with increase in the age of their mother upto 30 years. The mean birth weight of the new born to the teenage mother was lowest for rural as well as the urban (Miridula and Mishra, 2002).
Birth weight and subsequent weight gain was substantially lower among infants born to adolescent compared to adult women (Geervani and Jayashree, 1988).

A study conducted on the influence of maternal age and educational status on the incidence of LBW babies, reveals that there was a positive correlation of mother's age with that of LBW babies. Incidence of LBW babies in mothers who are below 18 years of age was highly significant. Such incidence of LBW in teenage mothers is strongly suggestive of physiological and psychological limitations in them. Therefore marriage and childbirth after 20 years of age in women would provide them enough knowledge and maturity for successful gestations are healthier babies (Rajeshwari and Gowrisankar, 1999).

In a study on early teenage marriage and subsequent pregnancy outcome in Jeddah, Saudi Arabia, the relationship between marriage before 16 years and pregnancy outcome throughout the childbearing period was examined. Participants included all married women attending six randomly selected primary health care units in Jeddah with at least one infant and complete medical file. Early teenage marriage was found for 27.2 per cent of women. Most of these were illiterate (57.1 per cent), housewives (92.4 per cent) and grand multipara (66.7 per cent). They were at twice the risk of spontaneous abortion, four times the risk of combined fetal death and infant mortality, and twice the risk of losing pregnancies any time during their childbearing years. They remained at high risk of poor pregnancy outcome throughout their reproductive lives (Shawky and Milaat, 2000).

A study on 'adolescent health determinants for pregnancy and child health outcomes among the urban poor' reveals that adolescents among the urban and rural poor have a high incidence of chronic energy deficiency (CED) and anemia. Adolescent pregnancies (15-19 years) contribute to 19 per cent of total fertility in India and record the highest maternal mortality rates. Besides maternal age, lack of education, low socio-economic status, maternal under nutrition and limited access to maternal health services are important determinants of poor pregnancy outcomes. Low birth weight is the major adverse outcome for the infant and an important determinant of increased child mortality (Sunil mehra and Deepti agarwal, 2004).
Pregnancy-related deaths are the leading case of mortality for 15-19 years old girls worldwide. The risk of maternal death is about three times higher in late adolescent (15-19 years) girls and those less than 15 year are 5 times as likely to die as women in their twenties. They also have a higher propensity to experience adverse outcomes such as higher fetal wastage (miscarriage and/or still births) (UNFPA, 1998).

A comparative study between teenage and adult mother reveals that the percentage of low-birth weights were seen high among teenage mothers than adult mothers. In comparison with the non-teenage mothers, a greater proportion of teenage mothers had insufficient income, did not own homes personnel, houses, were single parents, had few consultations with health personal, didn't plan their pregnancy, were pregnant for the first time and delivered infants with low birth weights (Isaramurug et al., 2006).

The results of comparative study on neo-natal outcome of mothers among teenagers and age group 20-30 years showed that more than 80 per cent of the teenagers were primigravida and about 91 per cent were in the youngest age group (16 years). The complication of anemia, eclampsia and pregnancy induced hypertension were significantly higher among the mothers not receiving antenatal care. Various neonatal morbidities had no significant difference between teenagers and control. The risk of Intra Uterine Growth Retardation (IUGR) babies was highest in the youngest teenagers. The incidence of LBW babies was higher in teenagers, whereas pre-maturity was highest among youngest teenagers. Mean values of birth weight, crown length, head circumference, chest circumference and mid-arm circumference were significantly lower among youngest teenagers. The incidence of still birth and prenatal mortality rate in teenagers were approximately three times as compared to control. The adverse outcome was limited to the youngest teenagers (Singh et al., 2004).

A review of history sheets of obstetric case records in a district hospital in 1992 was done to compare the obstetric outcome in 200 teenage first pregnancies with that in control group in 20 years to 29 years. It revealed that incidence of complications like anemia, pregnancy induced hypertension (PIH) and preterm labour were significantly higher among teenage mothers. The normal mode of delivery was commoner in teenagers (82.5 per cent) in
comparison to control group (76.5 per cent), probably because of higher number of low birth weight babies. The fetal outcome was significantly worse in teenage mothers with high incidence of perinatal mortality (8 per cent) and low birth weight babies (3.5 per cent). There was not a single new born with birth weight above 3500 gms in teenage group (Verma and Das, 1997).

A comparative study on the outcome of adults and adolescent pregnancy in Jordan shows that medical and obstetric complications including pregnancy-induced hypertension, diabetes mellitus, anemia, placenta praevia and multiple pregnancies were not different in both groups, where there was a significant increase of preterm labour in adolescent pregnancies compared to adult pregnancies (14.6 and 8.1 respectively). Moreover adolescent pregnancies when compared to adult pregnancies were associated with a significantly higher incidence of forceps delivery (Muataz et al., 2006).

A study on reproductive morbidity and health seeking behaviour of adolescent women in rural India shows that, 9 per cent of children to adolescent women were delivered by caesarean. During delivery, more than one third of women experienced some problem during delivery. Out of the total reported episodes of complications, 54.5 per cent of women reported prolonged labour and 45.5 per cent complained of obstructed labour during pregnancy (Abilasha Sharma, 2003).

The health of the infant is affected by the mother's age at the time of birth. The very high rate of infant death among women below 20 years of age is due to biological immaturity as well as their inability to care for their children due to economic instability or lack of experience of motherhood (Hemant Tirwari, 1989).

The net effect of maternal age on neonatal and post neonatal mortality examined in a study conducted in Gujarat state of India showed that only the offsprings of the youngest mothers (less than 29 years old) were exposed to high risk of death during neonatal period, while the babies born to older mothers
(30 years and older) were exposed to a much higher risk of death during the post neonatal period (Gandotra and Das 1988).

Most of the studies reviewed in this section show that all most all the adolescent mothers had experienced one or more complications during their pregnancy period due to their biological immaturity.

2.6 Reproductive health problems

Adolescents, in general, face a variety of reproductive health problems beyond early marriage and fertility. Marriage and consequently the onset of sexual activity and fertility occur far earlier in India than in other regions. Though the legal age at marriage in India is 18 years, one fourth (25 per cent) marry well before they are 18 years (NFHS, 1998-99).

The results of the analysis of the National Family Health Survey-2 showed that women who had their first birth at 19 years or below were more likely to suffer from reproductive as well as sexual health problems than women who had their first birth at the age of 20 and above (Kavitha, 2005).

A study conducted to assess the general and reproductive health of female adolescents in a rural district in Tamil Nadu, revealed that adolescents had headache, body pain, and fatigue. There was a reluctance to discuss sexual health problems, but many reported concerns about menstrual irregularities. Girls participating in groups stated that they would feel more comfortable attending a separate adolescent clinic run by female physicians. In interviews with 190 girls, the most frequently cited health complaints were fatigue, palpitations, frequent headaches, backache, and abdominal pain. Over 20 per cent suffered from joint pains, weight loss, poor appetite, and recurrent respiratory problems. Those with higher educational status had fewer health complaints. 30 per cent were anemic, and height, weight, and body mass indexes were typical of those found in chronically undernourished populations. Adequate knowledge levels of topics such as menstruation, contraception, nutrition, and AIDS were extremely low (Joseph et al., 1997)
Vaginal discharge is frequently the most common gynecological symptom reported by both rural and urban Indian women (Bang and Bang, 1994, Narayan and Srinivasan, 1994). The comparison of the results from seven studies in different parts of India found wide variation in all types of gynecological problems ranging from 33 to 65 per cent for menstrual disorders and 13 to 57 per cent for excessive discharge (Koenig and other 1998).

A study on "A decade of research on reproductive tract infections and other gynecological morbidity in India" revealed the influence of various factors on the prevalence of reproductive tract infections (RTIs). An association between pelvic inflammatory disease (RID) among women and husband's extramarital sexual relations has been well documented (Ooman and Nandini, 2000). Findings from a study conducted in Mumbai revealed that the use of contraception especially, IUD, female sterilization and abortion procedures also increases the risks of RTIs (Gogate et al., 1998).

A study on reproductive tract infections and other gynecological morbidities revealed that obstetric experiences of women and certain routine procedures during gynecological examinations may lead to contracting RTIs. Lack of menstrual and personal hygiene is also found to be associated with RTIs. In addition, there are socio-economic and cultural determinants of RTIs. Studies have shown a strong association between women's livelihood, work and their reproductive health (Ooman, 2000).

Women with self-reported symptoms of reproductive morbidity do not seek treatment due to existing taboos inhibitions regarding sexual and reproductive health. They hesitate to discuss their reproductive health problems especially due to shame and embarrassment (Bang et al., 1989, Oomman, 2000). A study on adolescent reproductive health reveals that even if they seek treatment, a majority of women seek health care from quacks or unqualified private practitioners which has serious implications on their health. Untreated infections can not only lead to pelvic inflammatory diseases, ectopic pregnancy,
infertility and cervical cancer, health problems of new born and increased risk of HIV transmission. In addition to health consequences, women experience social consequences in terms of emotional distress related to gynecological morbidity (Mamdami, 1999).

A study on young married women aged 16-22 years in rural community in TamilNadu reports a very high level of morbidity. The study shows that more than half of the women were suffering from at least one or more RTIs. Clinical examination also confirmed STIs among majority of them (Joseph et al., 2000). Another study reported high rates of gynecological morbidities, especially in the settings where girls have limited access to adequate health care (Bott and Jejeebhoy, 2000).

A large proportion of adolescent girls suffer from various gynecological problems, particularly menstrual irregularities such as hypermenorrhoca, hypomenorrhoea, menorrhagia and dysmenorrhoea. In a study conducted in Mumbai, nearly 55 per cent of the girls were found to be suffering from dysmenorrhoea (Vaidya et al. 1998).

A study on menstrual practices and reproductive problems of adolescent girls in Rajasthan shows that there was a significantly strong relationship between practices during menstruation and prevalence (reported symptoms) of RTIS. The prevalence of RTIs was more than three times higher among girls having unsafe menstrual practices (Anoopkhanna, et al., 2005).

It was reported that dysmenorrheal and irregular menses were the commonest reported menstrual problem of which only 5.3 per cent consulted a doctor and 22.4 per cent took over the counter medication (Singh et al., 1999).

A study on adolescent health issues and concerns in India reveals that girls aged 10-19 years comprise about 22 per cent of the female population. A wide range of issues and concerns afflict adolescents in India including nutritional deficiencies, reproductive health problems and sexually transmitted diseases (Kannan, 1995).
A study on the reproductive health problems of women in rural Uttar Pradesh reveals that women suffer from reproductive morbidity due to their 'culture of silence'. They are reluctant to discuss their problems with either anyone at home or with a health provider (Patel and Khan, 1996).

A community-based survey on "Dysmenorrhea in Adolescent girls in Rural Area of Delhi" covered 300 girls aged 11-18 years. The study reflected that 70.8 per cent of girls experienced dysmenorrhea. The mean days of menstrual flow was significantly correlated with painful menstruation (Aggarwal et al., 1997).

A study on "reproductive health needs of adolescents" revealed that 59 per cent of the 451 women who had participated in the study, had one or more gynecological problems. 48.5 per cent of women had RTIs and 9 per cent had infertility. 40 per cent of women, who had infertility, had RTI. A high prevalence of bacterial vaginosis (18 per cent) and trichomoniasis (13 per cent) was seen in the study. The prevalence of STD's (trichomoniasis, syphilis, Chlamydia and hepatitis B infection) in the study was 18 per cent (Prasad and Jasmine, 2000).

Physiology is the first factor that makes adolescents, particularly girls more vulnerable than adults to STIs. Because girls have large mucosal surface area exposed to infection and have not developed nature mucosal defence systems, the cells that line the opening of the cervix are more susceptible to chlamydia, gonorrhoea and HIV than those of adult women (Population Council, 1999).

"A study on adolescent self reported reproductive morbidity and health care seeking behaviour in Bangladesh" revealed that a large proportion of the adolescents (64.5 per cent) had one or more gynecological morbidities. Two fifths (40.0 per cent) had one problem followed by 36.4 per cent who had two, 18.6 per cent have had three and 50 per cent had four and more problems. The most frequent form of morbidity was menstrual disorders (63.9 per cent) followed by lower abdominal pain (58.6 per cent), burning sensation during urination (46.1 per cent), genital itching (15.5 per cent), and vaginal discharge.
Multivariate logistic regression analysis revealed that older adolescents aged 15-19 years, family income; type of family, type of residence and hygienic practice during menstruation appeared to be influencing factors for adolescent's reproductive morbidity. The results also revealed that above one fifth (18 per cent) sought health care for their gynecological ailments indicating that adolescents were unaware of their reproductive morbidity (Mizanur et al., 2005).

A study on reproductive tract infections among young married women in TamilNadu, India shows that fifty three per cent of women reported gynecologic symptoms, 38 per cent laboratory findings of RTIs and 14 per cent had clinically diagnosed pelvic inflammatory disease. According to laboratory diagnoses, 15 per cent had sexually transmitted infections and 28 per cent had endogenous infections. Multivariate analysis found that women who worked as agricultural labourers had an elevated likelihood of having a sexually transmitted infection, as did those married for five or more years. Two-thirds of symptomatic women had not sought any treatment; the reasons cited were absence of a female provider in the nearby health care centre, lack of privacy, distance from home, cost and a perception that their symptoms were normal (Jasmin Nelen Prasad et al., 2005).

A study on adolescent women in India and Nepal report relatively high rates of gynecological morbidities, especially in the settings where girls have limited excess to adequate health care (Jejeebhoy, 2000).

A study on reproductive morbidity among the rural women in Maharastra, shows that nearly half of the respondents reported to have one or the other symptoms of RTI/STDs. That majority of them (28 per cent) reported to suffer with low/back ache followed by abnormal vaginal discharge (18 per cent) and pain in lower abdomen (12 per cent) (Saurabh Singh, 2006).

A study on reproductive morbidities and health seeking behaviour of adolescent women in rural India shows that out of those who reported any gynecological problems, in more than one third of cases adolescent women reported to be suffering from white discharge. Around one fifth of the illness
episodes reported to be of menstrual disorders including irregular episodes were of lower back ache and 12.6 per cent of lower abdominal pain not related to menstruation. 5.2 per cent of episodes were reported to be itching/irritation including sores in the vaginal area and 6.4 per cent of burning sensation while urination (Abhilasha Sharma, 2003).

A study on reproductive morbidity and health seeking behaviour of adolescent women in rural India shows that treatment seeking behaviour of adolescent women for gynecological problems reveals that episodes of white discharge recorded the highest number of untreated cases (86.7 per cent). In more than 70 per cent of cases women suffering from menstrual disorders, lower back ache and lower abdominal pain did not seek any treatment. In case of treatment for gynecological morbidity, those women who sought treatment depended on private providers (68.2 per cent). In only 16.5 per cent of cases treatment was sought from government providers. In 5 per cent of cases medicines were brought directly from chemist shop and another 5 per cent of cases, women relied on home remedy (Abilasha Sharma, 2003).

A study on reproductive tract infection among female adolescents in Kerala, India shows that 35 per cent of the girls had given the history of excessive vaginal discharge without low backache/lower abdominal pain and they were supposed to suffer from vaginities and 29 per cent have history of lower abdominal pain with vaginal discharge. Among them 12 per cent had burning sensation and 50 per cent had dysmenorrhoea (Ram et al., 2006).

A study on self reported gynecological problems from twenty three districts of India shows 24.4 per cent women mentioned having one or more gynecological problems. The commonest problem was backache 10.4 per cent followed by low abdominal pain (8.3) majority (20.6) of the women know, from where to seek services but only 14.2 per cent went to any health facility (Indra P.Kambo, 2003).
The results of the studies discussed in this section revealed that more than half of the adolescent mothers had experienced any one of the reproductive health problems in their lifetime.

2.7 Family planning

The knowledge and use of contraception among adolescents are discussed in this section based on the results of earlier studies conducted in India and in other countries.

Through a house-to-house survey, 455 married adolescent women (<20 years) and 455 married women aged 20-45 years from squatter areas in Alexandria, Egypt were interviewed. Determinants of early marriage were consanguinity, illiteracy and unawareness of reproductive health. Of the currently pregnant adolescents, 22 per cent were receiving antenatal care compared with 40 per cent of the older women. Family planning methods were currently being used by 39 per cent of the adolescents and 63 per cent of the older wives. Determinants of non-use were: adolescence, illiteracy and previous miscarriage/stillbirth. There is a need to increase public awareness of reproductive health and change the behaviour of both groups of women in this under-privileged sector (Sallam et al., 2001).

Another study on reproductive health of adolescent women in squatter areas in Alexandria, Egypt shows that more than 95 per cent of the respondents knew the term family planning and had positive attitudes toward conception, though knowledge of specific contraceptive methods varied by socio demographic characteristics and age. About 27 per cent of married participants were using contraceptives during the study period. Of the less educated participants, 48 per cent had heard of Sexually Transmitted Diseases (STDs), particularly AIDS. Reported measures to protect oneself from STDs include following religious teachings (60 per cent), premarital exams (17 per cent), and periodic check-ups (17 per cent). Female circumcision was approved by 79 per cent of respondents, and 95 per cent of educated men approved helping with the care for children, compared with 79 per cent of those with less education. These findings can be used to improve reproductive services for adolescents and young adults in Egypt (Family Health International [FHI]. Women's Studies Project, 1998).
A study on sub-Saharan African countries shows that adolescent's fertility is highest in Zambia and lowest in Ghana. Contraceptive knowledge is high but its use is low among adolescent males and females. Adolescent females have low levels of knowledge about some aspects of reproductive health (Tawiah, 2002).

Peruvian adolescents had poor image and little use of condoms, lack of knowledge of the fertile period and inadequate sexual negotiating skills among young women (Raguz, 2001).

Contraceptive use is low among women of all ages in Sub-Saharan Africa, but is even lower among adolescents. In Senegal, only 2 per cent of married women 15-19 years old use contraception, while in Benin and Nigeria less than 10 per cent of married adolescents (Ladjali, 1993).

The analysis of data from Demographic and Health Surveys, other national surveys and studies conducted during the last decade are used to examine the contraceptive behaviors of Asian adolescents. The analysis includes Bangladesh, India, Nepal, Pakistan and Sri Lanka in South Asia, as well as Indonesia, the Philippines, Thailand and Vietnam in Southeast Asia showed that although awareness of contraception is almost universal among married adolescents, knowledge of specific methods and sources of supplies is limited. Use of modern methods varies considerably among countries, from 2 per cent of adolescents in Pakistan to 44 per cent in Indonesia. In general, however, contraceptive prevalence is lower in South Asia than in Southeast Asia. Although there has been a substantial increase in contraceptive use among adolescents, unmet need remains high, ranging from 9 per cent in Indonesia to 41 per cent in Nepal. The study concluded that Asian adolescents need accurate information about sexuality, reproduction and contraception as well as user-friendly reproductive health services. Intervention research is needed to identify appropriate strategies to address these needs (Pachauri and Santhya, 2002).

In a study in rural Maharashtra, India, adolescents constituted 13.1 per cent of the 1717 married women who had an induced abortion during an 18-month period in 1996-1998. The 197 adolescents who were subsequently interviewed
had a lesser role in the decision-making process on abortion than women older than they were. Most abortions were done in the private sector. Though spacing was the main reason for adolescents seeking abortion, prior contraceptive use among them was low. Additionally, they were less likely to receive post-abortion contraceptive counselling or to adopt contraception. Sex selection accounted for more than a fifth of abortions among adolescents. Additional qualitative data from 43 never-married and separated adolescents seeking abortion showed that non-consensual sex made many pregnancies unwanted, and cost, limited mobility, lack of family and partner support and the need for privacy to prevent stigma led many to go to traditional providers, even though safer options existed. Family planning programmes need to address the contraceptive needs of newly married adolescent women as well as unmarried adolescents. Informing adolescents of their legal rights, sensitising providers to adopt an empathetic attitude, and exploring innovative ways of increasing access to safe services for unmarried adolescents are all recommended (Ganatra and Hirve, 2002).

An examination of trends in contraceptive use among married adolescent girls in rural Bangladesh using the data obtained from the 1994 Fertility and Reproductive Health Status of Married Adolescents in Rural Bangladesh Survey, shows that contraceptive knowledge was almost universal. 36.5 per cent reported ever use of contraception. 26.5 per cent had ever used the pill and 7.3 per cent had ever used the condom. 25 per cent were current users. Contraceptive prevalence was 23.4 per cent for modern methods and 1.6 per cent for traditional methods. 92 per cent supported family planning, of which 80 per cent thought that every couple should use contraception for maintaining a happy family life and regulating births. 56 per cent used contraceptives for protecting maternal health. Adolescents tended to begin contraceptive use 1.5 years after marriage, or at an average of 17 years. 59.4 per cent received contraception from health workers in the home. 22.5 per cent obtained supplies from a local pharmacy. 78 per cent of husbands were aware of their wife's use. 97 per cent of husbands approved of use. However, about 94 per cent of older family members objected to the use. Never use (1235 persons) was mostly related to
the desire for children (38 per cent). 65.2 per cent of never users planned to use it in future. The most significant predictor of current contraceptive use was age. The second key predictor was educational level (Islam and Islam, 1998).

A study on contraception among adolescents in Bangladesh, India shows that knowledge of family planning (FP) was almost universal among both groups, with specific knowledge about methods slightly lower among adolescents. Ever use of a method was reported by 26.3 per cent of the adolescents and 48.4 per cent of the adults. The contraceptive prevalence rate was 15.3 per cent among adolescents (10.7 per cent modem and 4.6 per cent traditional methods) and 34.4 per cent for adults (10.5 per cent female sterilization, 9.9 per cent oral contraceptives, and 6.4 per cent traditional methods). Little difference was found in the attitudes towards contraceptives of adults and adolescents. 83 per cent of adolescents and 58 per cent of adults indicated an intention to use a method in the future. When attitudes about family size were indecisive, contraceptive usage was very low. Logistic regression analysis revealed that increased education is the most Important factor having a positive effect on the contraceptive use rate for adolescents, followed by participating in family decision-making, frequency of visits by FP workers, region of residence, husband's occupation, and availability of electricity in the household. The policy implication of these findings is that as women's status improves with increased opportunities for education and employment, they will find ways to meet their contraceptive needs. Also, the popularity of traditional methods could be exploited by program managers, since traditional methods can be effective if taught properly and used consistently. Adolescents need to become aware of the negative consequences of early marriage, early pregnancy, and large family size, they need information on the availability of FP methods and their use-effectiveness, they need improved reproductive health care services which are readily available, and they would benefit from programs designed to overcome the resistance of older family members and husbands to FP (Islam and Mahmud, 1995).
A baseline survey conducted in three districts of Madhya Pradesh (Bhopal, Sagar, and Vidisha) by the Center of Operations Research and Training (COR.T) Baroda found that 15 per cent of the female population in the district were adolescents (aged 13-19), and 62 per cent of households had nuclear families. A quarter of the adolescent girls were married and the proportion of ever married teenage girls was significantly higher in rural areas than in urban areas. The mean age at marriage was 15 years. 92 per cent of the adolescents knew at least one modern contraceptive method and 83 per cent knew at least one modern method of birth spacing. They were most familiar with female sterilization, oral contraceptives, male sterilization, the condom, and the IUD. Almost 19 per cent of the married teenagers had ever used a contraceptive method (13 per cent modern method and 6 per cent traditional method). Only 10 per cent were currently using family planning. Spacing was more extensively used in urban than rural areas. Total unmet need for contraception was estimated at 43 per cent among married adolescents: 37 per cent for spacing and 6 per cent for family size limitation. 25 per cent of the adolescents did not approve of family planning, while 8 per cent of husbands or other family members opposed family planning. Husband-wife communication regarding the number of children desired was 50 per cent among those aged 20-44 years compared with 38 per cent among teenagers. 6 per cent of the adolescents reported at least one unwanted pregnancy. 50 per cent of these unwanted pregnancies resulted in live births, 7 per cent in stillbirths, 21 per cent in attempt about aborted, and the remaining 19 per cent continued with the unwanted pregnancy (Rajagopal and Phillip, 1995).

A study on reproductive health awareness of young women in Tirupati, India shows that all the respondents knew about more methods of contraception, vasectomy and male condom methods. Among the female methods, tubectomy and Mala D were mentioned by 60 per cent of the young women (Hari et al., 1995).
A study on reproductive health needs of adolescents in Bangladesh reveals that most of the adolescents (70 per cent) had heard of family planning practices, mostly from TV and radio. Of the adolescents who knew about it, most (>90 per cent) knew about the pill. The proportion of girls who knew about condoms was low (35 per cent), although most adolescents hold a positive view about using family planning methods by the married adolescents. Of the married girls, about half were family planning method users. The methods used were pills, condoms, injectables and IUD. The primary source of supply for both urban and rural areas was the pharmacy. Reasons for not using family planning methods include desire for children and post-partum amenorrhea (Quamrun Nahar et al., 1999).

A study on 'Contraceptive use in women from a resettlement area in Delhi' shows that out of a total of 206 women studied 53.9 per cent were adolescents. 76.1 per cent of the subjects had their first child when they were between 15-19 years of age. Prevalence of contraception was 45.1 per cent only 2.9 per cent had used a contraceptive to space the first child. Significantly higher proportion of women adopted contraception after the birth of first child as compared to those with zero parity. Also women aged more than 19 years were more likely to use contraception as compared to the adolescents. Main reasons cited for not using the contraception to space the first child was being newly married (53.1 per cent) and too soon after the marriage (22.4 per cent) 30.6 per cent of them had unmet need for contraception) (Khohkar, and Mehra, 2005).

Most of the studies reviewed in this section showed that usage of contraception is low among adolescents because of their low educational status, and lack of knowledge on reproductive health.
2.8 Sexually Transmitted Diseases

Awareness of Sexually Transmitted Diseases (STDs) was generally poor among adolescents. Specific knowledge of AIDS and its mode of transmission were very limited and misconceptions were widespread (Bhende, 1995).

A study on AIDS-related knowledge, attitudes and behavior among adolescents in Zambia reported a moderate to high AIDS knowledge, positive attitudes towards prevention, and low to moderate self-efficacy about AIDS prevention. Although these factors were significantly related to adolescent's engagement in high-risk behavior, the results indicated that these variables add only 3 per cent of explained variance beyond the socio-demographic variables. Three groups were identified as at most risk for HIV: out of school adolescents, adolescents from rural areas, and married adolescents (Slonim-Nevo and Mukuka, 2005).

A study on early marriage and HIV risks in sub-Saharan African countries showed the counter intuitive finding that married adolescent girls in urban centers in Kenya and Zambia have higher rates of HIV infection than do sexually active unmarried girls. In both countries, early marriage increases coital frequency, decreases condom use and virtually eliminates girls' ability to abstain from sex. Moreover, husbands of married girls are about three times more likely to be HIV-positive than are boy friends of single girls. Although married girls are less likely than single girls to have multiple partners, this protective behaviour may be outweighed by their greater exposure via unprotected sex with partners who have higher rates of infection (Clark, 2004).

A study on adolescent reproductive and sexual health in the developing world shows that there is a great diversity of challenges faced by young people in regard to sexual health: early pregnancy, sexually transmitted diseases and HIV/AIDS, socially accepted gender roles, and the position of female in many
societies. Education and information dissemination prove to be effective means of promoting safe sex among young people and provide better understanding to older people; young people, particularly girls, must be aware of the nature of their sexuality and the consequences of their sexual behavior (Ingwersen, 2001).

A study on knowledge, attitude and behavior on adolescent's reproductive and sexual health in several countries in Asia shows that knowledge of sexuality and reproductive health is low because neither the schools nor the parents make it their business to seriously and systematically educate the youth on these subjects. Among the reasons for this is the sensitive nature of the subjects. As a result, other sources, not all of them accurate or well-meaning, fill the void. These include peers and mass media. It is noted that without the guidance from parents and teachers, information from questionable sources can lead to risky behavior (UNESCO, 2001).

A study on implications of early marriage for HIV/AIDS policy shows that the majority of sexually active girls aged 15-19 in developing countries are married, and these married adolescent girls tend to have higher rates of HIV infection than their sexually active, unmarried peers. Thus married adolescent girls not only represent a sizeable fraction of adolescents at risk, but they also experience some of the highest rates of HIV prevalence of any group. Nonetheless, married adolescents have been marginal in adolescent HIV/AIDS policies and programmes aimed at adult married women. It is time indeed to give substantially greater attention to the role that early marriage plays in potentially exposing girls and young women to secure reproductive health risks, including HIV. Protecting these young women may not only serve to help prevent the disease from spreading from 'high-risk' groups to the general population in their own generation, but also to the next generation by reducing mother-to-child transmission among this most intensive childbearing group (Bruce and Clark, 2004).
Out of an estimated 7,000 new HIV infections every day globally, half of the HIV infection affected adolescents and young adults are in the age group from 10-24 years (Barongo et al., 1992).

Nigerian teens face reproductive and sexual health risks; adolescents lack knowledge of contraception necessity to use it inconsistently. STD/HIV/AIDS knowledge is low and infection rates are high (Casey, 2001).

A study on adolescent's reproductive health in Pakistan shows that sexuality among young people is considered a taboo subject. Since awareness about sexually transmitted diseases is still low young people particularly have no access to adequate sex education; they are not being prepared to look after themselves (Khan, 2001).

A study on knowledge, attitudes, beliefs and practices on AIDS in four locales in Maharashtra, revealed that fewer than five per cent of the respondents were aware that AIDS could be transmitted through infected blood, fewer than 11 per cent mentioned that sexual relations with sex workers could be a mode of transmission and as many as 13.19 per cent AIDS was curable (Chitale Das and Nadharni, 1992).

Another study regarding awareness level of adolescents towards sex related issues found that majority of the adolescents were aware of certain aspects of sex, HIV/AIDS, menarche but not much of it. They also had few misconceptions (Kumar et al., 1995).

The reproductive health awareness was distressingly low in the rural tribal female adolescents. The awareness was found to vary from one theme to another of reproductive health. It was found to be lowest on the theme STI, HIV and AIDS. Both religion and educational status were found to produce significant main effects on reproductive health awareness (Hassan et al., 2003).
The results of the studies discussed in this section revealed that almost the adolescents have low level of knowledge on sexually transmitted diseases and mode of transmission of HIV/AIDS,

The overall results of the studies reviewed in this chapter indicate the need for research into factors that determine the adolescent reproductive health behaviour and plan programmes to meet the unmeet reproductive health needs of adolescent mothers in rural areas.