Chapter 1

Introduction
INTRODUCTION

The world population is about 5.8 billions today. About 4.7 billions of world’s population is in developing countries (World Population Data Sheet, 1997, Population Reference Bureau (PRB)). The global population has been growing rapidly. It is projected that world population will reach six billion marks before the middle of 1999 and the day of six billion to be observed on sixteenth June 1999 (UNFPA, Population Head Lines, July-Aug 1998). About 98 per cent of the global population growth is taking place in developing countries (World Population Data Sheet, 1997, PRB). By the year 2025, today's developing countries population is projected to the total of 6.8 billions while the developed countries remain at 1.2 billions, the same as today.

We are adding the numbers at the rate of 80 millions a year. And one billion of the population is in between 15 and 24 years old. It is these people who will largely determine the pace of population growth in the coming years by their decisions on the size and spacing of their families. According to a recent Reuters Report the world would probably have 500 millions more people than it does currently, this scenario would be a reality largely because international family planning programmes would have been unavailable to tens of millions of couples. According to “World Population Over View 1997” even though world population growth slowed
somewhat during 1997, it remains a danger to stability. The report published by the population institute claims that three main factors drive the continuing “explosion”, they are:

1. Huge unmet demand for family planning services,
2. A persistent desire for large families in several developing countries and
3. The sheer demographic force of nearly 3 billion people expected to enter the reproductive age group over the next 25 years.

As already mentioned that 98 per cent of population growth is taking place in developing countries only. And it is noteworthy that 40 per cent of world’s population growth takes place in China and India only. India is the second largest populated country in the world, next only to China with a population of 971 millions in 1998. It accounts to 16.5 per cent of world’s population with only 2.4 per cent of land area and the population of India will reach one billion by the end of this century. Annual number of births occurring in India is the highest in the world. (24,381,000 births in 1996 UNICEF, The State of World Children, 1998).

According to 1991 census, India registered an annual population growth rate of 2.11. Wide diversity is observed among Indian states. Among the major states of India the highest annual growth rate is observed in Rajasthan with an annual growth rate of 2.50 and the lowest growth rate is in Kerala with 1.34. India’s 1992-93 National Family Health Survey
NFHS findings also observed wide diversity among Indian states. The
total fertility rate, which ranges from about two children per woman in Goa
and Kerala to above five children per woman in Uttar Pradesh. If we take
couple protection rate into consideration, it is high in Punjab with 77.4 per
cent and very low in Assam with 23.6 per cent. In India, we are adding
about 18 million people per year, which is an equivalent to adding the total
population of Australia to India's current population. At this juncture it is
important to note the causes and remedies for this unprecedented growth.

Why this study?

Among the components of population growth, fertility is the cause
for the rapid increase of the population. And family planning is the one of
the best measures to control fertility. Even though fertility and family
planning each is an independent area of research, they are highly
interdependent. Here it is worthy to mention that differences in levels of
contraceptive use explain 92 per cent of the variation in fertility.
(Population Reports, December 1992, Series M, Number 1, P.9). So, a study
about fertility with family planning will be more meaningful. Hence,
fertility and family planning is taken for the present study. At global level
some of the following findings draw researcher's interest to make a study
on fertility and family planning.
About 585,000 women—one every minute—die each year from causes related to pregnancy. Nearly all are in developing countries, i.e., 99 per cent of them in developing countries and 55 per cent of maternal deaths occur in Asia which account for 61 per cent of the world’s births. Many times mothers suffer temporary or permanent disability as the result of child-birth. Most of these lives and much suffering could be spared by relatively with low-cost improvements in reproductive health care such as better monitoring and care during pregnancy, and by referral and transport systems and care after delivery. And it was essential that about 200,000 maternal deaths each year result from the lack or failure of contraceptive services. Around 120-150 million women who want to limit or space their pregnancies are still without the means to do so effectively. Altogether 350 million couples lack information about contraceptive services. At least 75 million pregnancies each year out of total 175 million are unwanted, they result in 45 million abortions and over 30 million live births. (UNFPA, 1997).

More than 80 countries have declared that their population growth is too high and most of these countries are among the world’s poorest. (Werner Fornos, 1996). Nearly a quarter of the married women in the developing world, excluding China do not want to get pregnant but do not practice contraception.
If we look into the situation in India, where the highest number of births take place in the world with a growth rate of 2.11 per cent, there are wide regional differences among Indian states. The total fertility rates ranged from below replacement level in Kerala (2.0) and near replacement level in Tamil Nadu (2.4) to high replacement level in Uttar Pradesh (4.82). If we take contraceptive use into consideration, according to NFHS 1992-93 it varies from 13 per cent in Nagaland to 63 per cent in Kerala. The observed wide differentials are due to the diversity in cultural, moral, socio-economic conditions among Indian states. Therefore at this juncture studies at gross root level are more valuable and essential.

The results of the National Family Health Survey show that a few states are at or near the replacement level fertility. The most celebrated case of fertility transition in India has been the state of Kerala. Kerala is rather unique in India in terms of social development. The level of literacy is quite high, near universal among couples of reproductive age, and infant mortality is very low. In south India, Tamil Nadu is another state where the fertility decline is also spectacular, i.e., where a different situation is observed. In particular, the crude birth rate in Tamil Nadu is near 20, and the total fertility rate is around 2.2 in the presence of a moderately high infant mortality (56 per thousand in 1993). And crude death rate is (8.2 deaths per thousand 1993). Andhra Pradesh, a neighbouring state of Tamil Nadu, where a similar situation of socio-economic conditions were found, but the demographic conditions vary very widely. (Crude birth rate is around 24, but crude death rate of 8.6 is as low as in Tamil Nadu and infant
mortality 64). The above said difference in fertility drew the interest of the researcher to make a comparative study of fertility and family planning in Andhra Pradesh and Tamil Nadu. The table 1.1 shows the birth rates, death rates for the study areas according to the Sample Registration System (S.R.S.).

### TABLE 1.1
**S.R.S BIRTH RATES, DEATH RATES**

<table>
<thead>
<tr>
<th>YEAR</th>
<th>ANDHRA PRADESH</th>
<th>TAMIL NADU</th>
<th>INDIA</th>
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<td>BIRTH RATE</td>
<td>DEATH RATE</td>
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<td>1972</td>
<td>35.8</td>
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<td>1980</td>
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<td>1981</td>
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**Source:** Registrar General of India, Ministry of Home affairs, New Delhi, Sample Registration Bulletins.
From the above table 1.1, it is observed that the birth rate in Andhra Pradesh has declined from 35.8 per thousand population in 1972 to 23.8 in 1994, a decline of 12 points. During the same period in Tamil Nadu, it is declined from 32.4 in 1972 to 19.2 in 1994, a decline of 13.2 points. In India, for the same period the decline is 7.9 points only. Similarly, death rate is declined from 16.1 per thousand populations in 1972 to 8.3 in 1994 in Andhra Pradesh, a decline of 7.8 points. In Tamil Nadu, it is declined from 15.1 in 1972 to 8.0 in 1994 a decline of 7.1 points. Overall in India the decline of death rates for the same period is 7.6 points. Thus, the difference in the decline of fertility is clear between Andhra Pradesh (12 points) and Tamil Nadu (13.2 points) but the decline in death rates are almost same for Andhra Pradesh, Tamil Nadu and India. Overall the decline in birth rates and death rates in both the states is better than the average of India, but the decline of birth rate in Tamil Nadu is more than that of Andhra Pradesh. In addition to the above said secondary data, the other socio-economic, demographic and health and family welfare data is given in the appendix.
Review of Literature
REVIEW OF LITERATURE

For the present study as a primary step, a review of literature was undertaken as to understand to what extent the research questions had already been answered; to find research gaps and generate research hypothesis for the study; to improve research design on the basis of other researches and to facilitate the interpretations of the research findings of the present study, and their comparisons with those of previous studies; to systemize and facilitate access to growing and diversified body of literature touching the study subjects fertility and family planning.

Fertility and family planning are the two major research areas for demographers. Both of them are of a highly interdependent and are influenced by a set of same variables. Hence, an integrated study was made for the present study. In this study, variables are broadly classified into demographic variables, and socio-economic variables. Under demographic variables: ages of the respondent, age at marriage, number of living children are reviewed. And under socio-economic variables: education, income, status of women, communication are reviewed.
Age at Marriage:

It was obvious that a rise in age at marriage has played a role in fertility decline. As age increases there will be a better understanding on various aspects. Age at marriage influences the lives of women in different ways. A rise in age at marriage not only shorten the period of reproductive span but also influences many variables like continuation of education, better health, ability to work hard, child health, freedom to move freely, etc.

Age at marriage is an important factor, which determines fertility and also a major reason for the variations in the fertility levels among different societies of the world. Surveys show that the current generations of women in developing countries are marrying at a later age than previous generations had done. One indicator of this trend is changes in the median age at first marriage. The median age at first marriage has risen most in Asia and in North Africa. For example, among women in Morocco who were at age 40-44 at the time of survey, half of them have married before the age of 17. But among women in the 20-24 age group, more than half had yet to marry (Population Reports, Series M, No.11 Volume XX, Dec, 1992, p.25). In fact, in Morocco and in Sudan the rise in the marriage age explains even more of the fertility decline than does the increased use of contraception (Adlakha, A et al., 1990). In Sudan, for example, fewer than seven per cent of married women in the age group 15-24 use contraception. Nevertheless, the fertility of women 15-19 declined 40 per cent and fertility

Jain and Bongaarts (1981) have found that increasing age at marriage is the cause for the Japanis fertility reduction. By using stable population models, Coale and Tye (1961) have demonstrated that postponement of marriage can contribute substantially to reduction in the birth rates and the population growth rates even when completed size of family is not reduced. This study suggested that postponement of marriage could be an important component of population policy. The study by the Institute of Research in Medical statistics for 1972 and 1978 findings indicated that the fertility decline in these days are due to increase in age at marriage and higher acceptance of family planning (Kapoor, P. N., and Premi, M. K., 1993). In another study by Srivastava (1974) revealed that marriage age at 23 years or more showed a mean number of children born as 1.90 compared to 4.40 for mothers married below 15 years of age. T. Raja Ratnam (1990) found that a delay in marriage age is more effective in creating decline than a delay of 7 years in birth spacing. Not only does the delaying of marriage have a considerable and independent impact on population growth but also improves maternal and child health.
A study conducted in Bombay by Bhargava P.K. (1987) found a strong negative association between age at marriage and fertility. Age at marriage, particularly female age at marriage constitute one of the vital demographic variables which could explain the differential fertility in Andhra Pradesh and Tamil Nadu.

Age of the Respondent:

Age of the respondent is one of the important demographic variables, which determines fertility and contraception. The intra-spouse communication, involvement in decision making increases with age, the adoption of contraception will be very low in the early ages, high in the middle ages and again low in the older ages. Several studies revealed the same. (United Nations, 1961; Indian Institute of Public Opinion, 1964; Caldwell, 1968; Swee-Hook et al., 1968; Presser and Bumpass, 1970; Operation Research Group, 1972; Rahaman et al., 1980; Rele and KanitKar, 1980; Soeradji and Hatnodji, 1981; Bhatia, 1982; Zachariah, 1984; Sathar and Chidambaram, 1984; Rao et al., 1985; Oni and McCarthy, 1986; Shakila Rani, 1989).

Swee – Hook, et al., (1968) found that, “the proportion of wives who have ever used birth control increased slowly with the advance of age from
ten to fourteen per cent”. In Bangladesh, Rahaman et al., (1980) observed that the rate of contraceptive use increased through 30-34 age group, remained fairly stable through the 35-39 age group, and declined substantially afterwards. Sathar and Chidambaram (1984) using world fertility survey data arrived at the conclusion that “during the early part of the reproductive life, the incidence of contraceptive use is low, it increases in the middle ages and again falls at the older ages”. The same was observed in Bangladesh (Bhatia, 1982) and Nigeria (Oni and Mc Carthy, 1986).

In India also, some studies revealed that the age of women and use of contraceptives are positively associated. For example, findings from Mysore Population Study (U.N. 1961) suggested that the use of family planning methods increased with age of women and Operation Research Group (ORG), Baroda (1972) found a significant positive association between the age of women and use of contraceptives in their studies.

A study conducted by Zacharaiah (1984) in Kerala showed that the practice of family planning increased with the age upto 35 years after which it decreased, the percentage of ever married women currently using conventional family planning methods was 7.8 in the age group 15-19, which increased to 21.1 per cent for 20-24 age group and then to 21.3 for
25-29 age group, but thereafter it declined to 19.5 per cent, 18.2 per cent, 19.1 per cent and 15.1 per cent for the age groups 35-39, 40-44 and 45-49 respectively. Similar findings were noticed in three districts of Karnataka by Rao et al., (1985), and by Kaur et al., (1988) in eight villages of Haryana. Hence, in this study, age is considered as an important variable.

**Number of Living Children:**

The number of living children is an important demographic variable, which influences the contraceptive behaviour of couples. Couples who have achieved their desired or preferred number of children readily accept family planning than to those who have yet to achieve the deserved number of children. So many studies conducted in India as well as in the world found that there is a positive association between number of children living and adoption of family planning (Agarwala, 1961; Sengupta and Roy, 1969; ORG, 1972; Kaur, 1974; Khan 1979; Rele and Kanitkar, 1980; Sivaraju, 1982; Danda, 1984; Oni and Mc Carthy, 1986; Chandra, 1987, Moni Nag, 1991).

Oni and Mc Carthy (1986) in Nigeria noticed that the ‘contraceptive use is positively associated with the number of living children’. A few researchers in India also revealed the same observations i.e., the number of living children and adoption of contraception was directly correlated.
Agarwala (1961) found in his study conducted in villages near Delhi, that the use of contraceptives and willingness to learn increased. Rele and Kanitkar (1980) based on Greater Bombay Fertility and Family Planning Survey indicated that there exists a direct relationship between the rate of current contraceptive use and number of living children. Similar type of positive relationship was found by Danda (1984) at Basudha Village in Burdwan district of West Bengal and Chandra (1987) also found the same in rural and urban areas of Delhi. Thus, almost all the studies mentioned in this section have conclusively proved that the number of living children will play a greater role in determining the contraceptive behaviour.

Preference for a son:

A preference for a son is a common feature in all societies of the world. There is a wide spread of preference for a son among the cultural traditions of societies. Son preference was present in all parts of the world. However, the strength of such preference varies greatly from place to place and over time. Several studies conducted around world and in India revealed that there was a wide spread preference particularly for a son. (Westoff, et al., 1963; Mamdani, 1972; Park, 1979; Susan, 1984; Khan et al., 1987; Ram, 1992; Arnold 1992; Hiebert, 1993; ESCAP, 1993; International Institute for Population Sciences., 1992-93).
Westoff, et al., (1963) have said that “son preferences operate to affect family size if the desired composition is not readily achieved. Mamdani (1972) found that strong preference for son stems from a variety of social, economic and religious reasons and every family in India aspires for one son. It is well known fact, that these preferences post-pone and have a negative effect on adoption of contraception. Park (1979) found in his Korean Study, bearing and spacing the fourth child is strongly influenced by the sex distribution of children born, once birth control means are widely available.

Chaudhury (1982) observed that couples with strong preferences for a son may go behind their desired family size in the event that they do not achieve the sex composition, as they want by the time their preferred number of children is reached. One of the major causes for the son preference is old age security. Susan (1984) observed that in Taiwan parents rely on sons much more than on daughters unlike Philippines where son and daughter equally share the economic burden of their parents. Twenty Eighth Round National Sample Survey revealed that practice of family planning among young couple having one or more sons is much higher than among young couples having no surviving son but having one or more daughters. Fred Arnold (1992) observed preference for sons is a common feature in East and South Asia. And also there is a wide spread idea “that a boy belongs to us and a daughter to some one else”, Hiebert (1993) observed this in his Vietnam study.
Ram (1992) found that number of living sons have positive association with practice of family planning. In his study, he found that families with no surviving sons were 24 times more likely to have an additional birth within the time period with one son, they were eight times more likely. The probability of an additional birth with three sons and no daughters were about 80 per cent and with three daughters and no sons 98 per cent, two sons appeared to be a minimum requirement. The 1992–93 National Family Health Survey found that Indian Women as a whole said that they wanted 50 per cent more sons than daughters. And also it revealed that women in every state were more likely to practice family planning if they had two sons than if they had two daughters. And another observation made in this study is more Indian couples also wish to have at least one daughter. All the above said studies found a strong correlation between living sons and adoption of contraception. And M.M. Gandotra et al., (1998) found that 81 per cent of women with three births but no living son go on to have a fourth birth, compared with 70 per cent of women with one living son and 57 per cent of women with two or more living sons. Dhinadasa, K.S., (1986) says that people tend to increase family size in the desire for a male child. But these desires are stronger among lower caste groups. He found that high caste groups showed lower fertility. Among these families 97 per cent of couples satisfied with a small family had at least one male child. While, the lower caste groups were seen to increase family size despite the presence of a male child.
Infant Mortality:

Fertility and mortality are interdependent and they interact in so many ways. Infant mortality in particular has more interactions with fertility. Jain (1985) says that infant mortality is an important determination of regional variation in fertility, he found a strong positive relationship between infant mortality and fertility after using statistical controls is interpreted as the effect of infant mortality on fertility. And he observed that a decrease in infant mortality increases the contraceptive use also. Thus the influence of infant mortality on fertility appears to be high. Several studies also revealed it. (Davis, 1945; Notestein, 1945; Hassan, 1966; Adlakha, 1970; Wyon and Gordon, 1971; Schultz, 1974; Knodel, 1979; Rizk, et al., 1980).

Davis (1945), Notestein (1945) observed that high infant and child mortality is considered one of the deterrent factors in the adoption of small family size norm in developing countries because successful reproduction requires high fertility to offset high mortality. Freedman (1964) concluded on the basis of a comprehensive review of literature that a secular decline in mortality most eventually produce a decline in fertility and hence is a necessary condition for an effective social policy for reducing fertility". U.N. (1973) document states evidence accumulates that reduction of infant
mortality may be a necessary prerequisite to the acceptance of family planning. Heer (1966) found that the infant mortality level is one of the strongest and most consistent predictors of the fertility level.

Schultz (1974) found a clear statistical relationship between mortality and fertility for several developing countries. Number of studies around the world has shown the positive and significant relationship between infant mortality and fertility. By examining retrospective pregnancy histories, Hassan (1966) in Egypt, Adlakha (1970) in Turkey, Wyon and Gordon (1971) in India, Harrington (1971) in West Africa, Rutstein (1974) in Taiwan, Khan (1974) in Pakistan, and Chaudhury (1977) in Bangladesh, all found higher fertility among women who experienced child loss than who do not. Knodel (1979) in his study of 13 German villages found that the mean birth interval was 19.7 months, and the average interval from marriage to first birth was 17.9 months.

Rizk et al., (1980) in Egypt found that, after adjustment for other factors women who had lost one or more children desired almost one half of children more than women who had not experienced child loss. In India, Chandra Sekhar (1972) in his analysis of birth rates and infant mortality rates for 14 of the Indian states over the period 1951–61 observed a low positive, but not significant correlation of 0.34 between these two
variables. A study by Zachariah, et al., (1984) showed that the variations in the fertility rates have a significant association with infant mortality rates. Kulkarni (1975) in a cross sectional analysis of state level infant mortality and fertility rate found that fertility increases linearly with infant mortality. He observed that an increase of one unit in infant mortality increases crude birth rate by 0.14 unit, general fertility rate by 0.63 unit, total fertility rate by 0.02 unit and gross reproduction rate by 0.01 unit. Lower infant mortality implies the requirement of fewer births to produce a given number of children. The infant mortality seems to have a desired influence on the reproductive behavior of families.

Caste:

Caste is one of the important factors determining one's status in India. It does not only affect the socio-economic status of the individual but also the demographic behavior. In general higher caste people have better socio-economic status, which in turn influences the adoption of contraception. Several studies in India showed that there was an association between caste and adoption of contraception. It was found that there was a higher level of adoption of family planning among upper caste group followed by the backward caste group and comparatively much lower rate of adoption among the scheduled castes and scheduled tribes.
(Shatkawat, 1974; Kaur, 1974; Bhatia, 1979; Mahadevan, 1979; Khan and Prasad, 1983; Ghosal and Sarkar, 1987; Audinarayana, 1986; Rao et al., 1985; Sivaraju, 1987; Shakila Rani, 1989). Kaur (1974) conducted a study in two industrial units at Faridabad and found that adoption of family planning was the highest among the middle caste group. It declined slightly in the case of upper caste but the scheduled caste groups had the lowest adoption rates. Shatkawat (1974) also observed that contraception was the highest among upper caste groups. Mahadevan (1979) commented that induced abortion, voluntary and involuntary abstinence and reducing coital frequency are the major causes for the lower fertility among upper caste groups while these methods were not popular among lower caste groups. He also observed that there is higher adoption of family planning among upper caste groups as against lower caste groups in rural areas of Madurai district in Tamil Nadu.

In Bihar, Ghosal and Sarkar (1987) found that, the family planning acceptance was higher among upper caste groups and lower among scheduled caste groups. Based on the study conducted in three districts of Karnataka, Rao et al.,(1985) found that a higher acceptance of contraception among upper caste groups and lower practice of contraception among those belong to lower castes, the acceptance rate was high among Lingayats (higher caste group – 47%) where as it was low
among the Kuraba Caste (lower caste group-7%). Study by Audinarayana (1986) and shakila Rani (1989) also recorded that percentage of family planning acceptors are high among forward caste groups followed by backward caste groups and lowest among scheduled caste groups. Audinarayana (1992) found in his study that the highest fertility was among the scheduled castes (3.92) followed by backward castes (2.68) and forward castes (2.22).

Arora (1986) in his study conducted in Bhiwani city in the state of Haryana found that the mean number of births was 2.84, but decreased with increasing caste status from 3.28 among lower caste women, 2.78 among middle caste women, and 2.67 in upper castes. He also found that respondents belonging to the upper caste are better practiced family planning methods, as compared to those of lower castes.

Occupation:

Occupation is a good indicator to measure the socio-economic status. In general, higher occupational status was associated with higher education and income, which in turn leads to higher rate of adoption of contraception. It was found that occupation has a positive association with contraceptive adoption, and it has a negative effect on fertility. Particularly women occupation plays a vital role in determining the fertility and family

Fiesk et al., (1968) in their study found that 64 per cent of women who were currently earning wages expressed interest in family planning in contrast to 40 to 44 per cent of the self employed and housewives.

In India also several studies confirmed the relationship between occupational status and adoption of family planning. (Jacob Paul, 1965; Goyal, 1965; Sengupta and Roy, 1969; ORG, 1972; Mukherjee, 1975; Rele & Kanitkar, 1980; Sivaraju, 1982; Kanitkar & Murthy, 1983; Singh and Gupta, 1983; Dyson and Moore, 1983; Danda, 1984; Sukumari and Ammal et al., 1989; Shakila Rani, 1989; Islam, 1991; Valassof, 1992). The employment status is positively associated with contraceptive use.

Jacob Paul (1965) in his study in Hoogly district of West Bengal found that among those who are engaged in skilled and technical works, the percentage of contraceptive acceptance was 7 per cent, while among the unskilled and manual workers it was 28 per cent. However, among those who are in trade and business the acceptance rate was only 5 per cent, but among cultivators this percentage was much high (43%). Sengupta and
Roy (1969) found that the percentages of contraceptive adoption was the lowest among manual workers (35%) whereas the same for the technical and professional workers it was 40 per cent and 42 per cent respectively in experimental area. While the corresponding percentage in control area is 33 per cent, 53 per cent and 56 per cent respectively. Faruquee and Sarma (1983) found that labourers have highest fertility, those in service have lowest fertility and farmers and other groups were in between. It was found in several studies that women’s occupation have a strong influence on fertility and family planning behavior. Basu (1986) observed that domestic servants had fewer ever born children (2.33) and living children (1.85) than women working in other occupations (3.12 and 2.47) and women who are unemployed (2.40 and 2.06). Audinarayana (1992) found that fertility was lower among women working in the modern sector (1.88), traditional (3.58) and housewives (2.30). It was found that when women work outside home, they come into contact with different normative values of women, especially family size norm, and also the women who work outside home are able to spend only less time for rearing children than women who do not work.

Income:

Income is one of the important socio-economic indicators. It plays a major role in the determination of social status of a person or a family. Several studies proved that there exists a positive association between the

In United States lower class people have more children than middle and upper classes. Lower classes fertility appears to be higher due to insufficient and ineffective use of contraceptives (Rainwater, 1960; 1965 and Whelpton et al., 1966). Carvajal and Gaithman (1976) found in their study in seven Latin American countries, that not only does the use of contraception tend to increase with the level of income, but also adoption of more sophisticated contraceptive techniques. The association between women's work and control over earnings with the desire for no more children was significant (Kritz et al., 1994). Some other studies revealed that poverty rather than rising living standards and aspirations can provide the motive for family size limitations. (Freedman et al., 1981; Basu, 1986; Freedman and Freedman, 1986).

In India also several studies revealed that per capita income had effect on acceptance and also it has direct positive effect on acceptance of conventional contraceptives. The Mysore Population Study (U.N. 1961) reported that the economic status is positively associated to the practice of family planning. Chetla Urban Health Center Study (Muleitha and Kaur 1962) revealed that among the higher income group 57 per cent of wives
were practicing family planning, while this percentage was very less among the lower income group (20 per cent). Similarly Singur Rural Health Center area near Calcutta, they found that 33 per cent of those with monthly income exceeding Rs.150 practice family planning as compared to 22 per cent in lower income group. In the All India survey ORG (1972) noticed a well-established positive association between the family income and family planning adoption. For example, over 50 per cent of the couple with family income of over Rs.1000 per month had ever practiced family planning as against 13 per cent in the lowest income group of Rs.100 per month or below. However study of Haryana and Tamil Nadu, Mukherjee (1975) remarked that while the monthly household expenditure has very low correlation with practice of any family planning method in Haryana, moderate correlation (significant at .01 level) between these two variables was found in Tamil Nadu.

Kaur (1974) found a highly positive and significant association between income and the level of family planning adoption in two industrial units near Delhi. The same observations were made by Khan (1979) among the Muslims in Kanpur. Study conducted in three localities of Patna, Singh and Gupta (1983) inferred that respondents belong to the higher income categories are more inclined to sterilization than those belonging to the lower income groups. The mean monthly income for adopters was calculated at Rs.565 where as for the non-adopters it was only Rs.47.
Dandekar and Rath (1971) found that the average size of the household is higher among the lower income groups both in urban and rural population. Arora (1986) found that mean number of live birth for upper, middle, and lower income groups is 3.40, 3.22 and 4.26 respectively. The association between family size and family income is negative. Several studies confirmed it (Westoff et al., 1963; Campbell, 1968; Srivastva, 1974; Walker et al., 1974). Camp Bell (1968) showed that poor women (those below poverty line) have the fertility rate of an average almost twice to those who have better income. Srivatsava (1974) inferred that the influence of per capita income of family planning acceptance is high and it is highlighted by the potential role of monitory incentives in the strategy of programme implementation. Varadarajan (1981) notes in his demographic survey of the Koras in Nilgiris District, Tamil Nadu that women who belong to household having an annual income of Rs.2,000 and below, Rs.2,001 – 4,000, Rs. 4,001 – 6,000, Rs.6,001 – 8,000 and Rs.8,000 above had 2.74, 4.05, 3.06, 3.15 and 2.75 average number of live births respectively. This shows that acute poverty also plays a vital role in the determination of family size.

Education:

Education is a powerful factor in determination of fertility. It broadens the scope for a better understanding on different things. Education brings changes in the beliefs, conceptions and it brings in new
outlook, freedom from tradition, maturity, rationalism and new values of life which are in turn responsible for bringing about social change leading to a higher status. The awareness of family planning methods increases directly with the level of education of the spouses. Hence, education is regarded as an important determinant of fertility and family planning particularly women’s education is highly correlated with the level of adoption of family planning methods. Women’s education which brings in freedom, improves the status, improves the chances of employment and also better understanding about family, health, economy. All these factors are in favour of family planning adoption. The Mysore Population Study (U.N., 1961) revealed that education is directly related to the practice of family planning methods.

Several studies conducted around the world have reported positive association between the educational status and adoption of family planning (Rainwater, 1965; Whelpton et al., 1966; Barbara et al., 1981; Sathar and Chidambaram, 1984; Oni and McCarthy 1986). Based on the analysis of world fertility survey data for 28 countries, Sathar and Chidambaram (1984) concluded that “the pattern is very clear; the higher the number of years of schooling, greater is the prevalence of contraceptive use”. Audinarayana and Thenmozhi (1992) found the same in India also. In their study they observed that illiterates have high fertility with 4.13 mean live births compared to 2.94 among those with a primary education, 2.07 among those with secondary education, 1.72 mean live births in the case of
respondents who have higher education. An inverse relationship between maternal education and number of live births is evident (Sam and Sengupta 1960). Education particularly women's education has a direct relationship with the adoption of family planning. Several studies conducted in India have proved it. (Muleitha and Kaur, 1962; United Nations 1961; Sarupriya, 1964; Jha et al., 1969; Nayar and George, 1972; ORG, 1972; Kaur, 1974; Khan, 1979; Rele and Kanitkar 1980; Danda, 1984; Rao et al., 1985; Kaur et al., 1988; Khan 1988; Shakila Rani, 1989; Moni Nag, 1991; Rita Stood, 1991; and Valssof, 1992).

In India, female education monotonically increases the use of contraception and age at marriage, both in turn decreases fertility. Jain, A.K. (1982) found that the average number of children born to woman varies with her level of education. Advancement in female education is likely to decrease the fertility of children when they go through their child bearing period. This effect is not expected to exceed a decline of 23 to 26 per cent in marital fertility unless increase in average educational attainment of women which also has a suppressing effect on the fertility of women with no education. Singh and Gupta (1983) in their case study of Patna observed that education is significantly related to sterilization. For example, the percentage of adopted were more among those who were educated upto matriculation and above (79%) as compared to below matriculation level (21%). If family planning acceptance has to be increased, it is essential to increase the educational status of women to the
desired levels (Yadava, et. al., 1991). Islam, 1991 found in his study the proportion of women using contraception consistently increased by the level of education, i.e., 22 per cent of family planning used by illiterates, 33 per cent of family planning used by secondary educated and 90.8 per cent of family planning used by the college educated. D.H.S. Report 1992 revealed the consequences of education that could affect the relationship between female education and family planning practice. Thus, "educated women command better jobs and salaries, marry and their first child later. Education raises self esteem and increase confidence in dealing with wider world (ICPD, 1994). Hence, education is a powerful variable, which determines fertility and family planning.

Modernization:

To define modernization is difficult, because modernization is the collective effect of so many attributes like level of education, exposure to outside world, place of residence, type of occupation, ownership of modern household appliances, degree of adherence to religious and cultural traditions, their participation in social activities, and like.

Kaul (1968) developed a scale of values that differentiated between modern and traditional men in Brazil and Mexico. Pareek and Kodandapani (1969) found a significant correlation between ideal family size and birth control on one hand and some indices of individual
modernity on the other. Mukherjee (1979) found that the modernity variables tend to lower the fertility. Fawcett, (1970) also found inverse relationship between modernity and fertility, when the population was classified on a scale of modernity.

Korean family planning study by Chug et al., (1972) showed a positive relationship of modern attitudes towards contraceptive practice. Fawcett and Bornstainen (1973) also observed the relationship between modernization and family planning and fertility change. Many studies supported a negative relationship between fertility and an advanced level of modernization as a social variable (Ryder, 1959; Adelman and Morris, 1966; Fawcett and Bornstainen, 1973; Moni Nag, 1982; Hari, 1987).

Freedman and Takeshita (1965) opinioned that the more modern couples will have low fertility because of the greater use of effective contraceptives. In a study of rural India, Singh (1979) found the higher level of modernity associated with smaller, actual and desired family size the more favorable attitudes towards spacing of children and adoption of contraceptive device. Moni Nag (1982) revealed that modernity and fertility are negatively associated. Hari (1987) also observed the same. He found the less modern had 1.64 lives births higher than the more modern respondents.
**Status of Women:**

A woman's status is determined by many factors. A woman's status is determined by her education, occupation, freedom of expressing her opinion, her role in the decision making process in the family, active participation in social activities, etc. Mason (1984) says that women's status is a concept with many different factors, in general sense, it refers to women's unequal position in society. Gendell, et al., (1970) believed that one of the most important causes of the decline in the birth rate in the economically advanced countries has been the change in the social status of women reflected by the entry of women into productive labour. The strength of the women's voice in household decision making is an important independent variable, defining the ways in which women's status and fertility are likely to interrelate. Mukherjee (1975) found that changes in the status and roles of women were accompanied by changes in the family size and structure.

The effects of individual indicators of the status of women on fertility were decomposed into effects through each of the proximate variables. The improvements in the status of women execrated on increasingly negative effect on fertility during the demographic transitions (Jejeebhoy, 1991). She found that not all the women's status factors are related to fertility behavior also, there is confirmation that the relationship between women's status indicators and fertility behaviour is dynamic
during the transition period between 1970-80. Sadik (1984) points out “Women’s place in society is central to the success of population and development efforts. Without active participation of women in all aspects of population development related activities the achievement of goals of such national programs becomes an unrealistic explanations. Gurumurthy (1985) and Mahadevan (1979) found that the women who possess higher status in society have lower fertility as compared to those who do not have. And they found there was an association between adoption of family planning and status of women. Dyson and Moore (1983) observed women in the southern kinship system are better able to make reproductive choices such as using contraception because they are more valued, less isolated and more autonomous. They also are under lesser pressure to produce sons. Kabir et al., (1994) opinioned that a Government wishing to reduce fertility, may need to emphasis programmes that seek to change such attitudes and the status of women, rather than rely on the population to follow a two child per family rule.

**Communication:**

If a country is to prosper, the free flow of information is vital and that includes good statistical information. The information must be appropriate and widely available. Unlike other national resources that are consumed when used, the value of statistics grows when used. Communication activities give people the information they need to make
informal choices about using and continuing to use contraception, and other aspects of reproductive health communication not only make the people aware of family planning but also its proper use and where to find the services. As a result, it brings change among people in their outlook to discuss freely about contraception.

Pillai, 1971 found that neighbours, friends, relatives and other informal sources form the major source of information on family planning. Few studies revealed that health and family planning workers are not the source of information (Chandra Sekharan and Bebarta, 1963), while some other studies revealed the quite contrast results i.e., health and family welfare workers are the major source of information (Arora, 1966; Pillai, 1971). After a mass media project in Cebu province, the Philippines, the number of new family planning clients in government clinics rose from 1,320 in 1988 to 5,163 in 1989 (Rimon, J.G. 1989). Wong observed that socio-economic status and women's level of information i.e., access to mass media surprisingly such traditional variables as race and rural-urban residence have little influence, once other socio-cultural factors are controlled (Wong, 1994). A study found the influence of the media on reproductive behavior in Brazil stems mainly from the nature of the vehicles of message (Faria et al., 1994). Access to information through newspapers, magazines, television and radios was found to be the most important predictor of fertility level among women aged 20-30 (Wong, 1994). Several other studies also revealed that there is a positive

Analysis of family planning programme effect in 35 countries shows a close relationship between communication effort and percentage of couples using modern contraceptives (Ross et al., 1989). Study by Piotrow et al., (1992) found that mass-media messages influence the behavior, as family planning communication efforts around the world have demonstrated, for example, after a multimedia campaign in Zimbabwe, a survey of married men found contraceptive use in certain areas had increased from 56 to 59 per cent and condom use from 5 to 10 per cent. So communication is included as an important variable for the present study.

**Intra-Spouse Communication:**

Husband-wife communications is an important variable, which determines the fertility and adoption of contraception, because they are the persons responsible for children. The frequency and the range of husband-wife communication depend on their education, economic position, etc. However, several studies have revealed that intra-spouse communication is significantly associated with the adoption of family planning as well as
family size. Sufficient evidence was observed from the studies that intra-spouse communication plays a role in the practice of family planning. (Hill et al., 1959; Rainwater; 1965; Michal, 1967; Weller, 1968; Liev et al., 1970; Vernon, 1989; W. Miller et al., 1991; Salway; 1994).

Michal (1967) in his study of 'Interactions in the French urban family' found equality or dominance of wife among the couple were positively related to couples realization of goals of family planning. Hill et al., (1959) also observed the same in their Puertoricon study. Liev et al., (1970) in their study found that intra-spouse communication was associated with both lower family size desires and higher contraceptive efficiency even when socio-economic status is controlled.

In Colombian studies of new vasectomy acceptors, Goldsmith et al., (1973) found that the wife was the initial source of information about the procedure for one in five men. And Vernon et al., (1989) found that wife was the main person in motivating them to undergo vasectomy operation in half of the cases. Miller et al., (1991) found that effective couple communication was the predictive of vasectomy.

Some studies conducted in India also revealed the same. (Arora, 1966; Dubey and Goldein, 1967; Poffenberger, 1969; Sengupta et. al, 1969; Pillai, 1971; U.N, 1975; Mukharjee, 1975; Khan, 1979, Sivaraju, 1987; Shakila Rani, 1989; Sud, 1991)
Arora (1966) observed in her study, that a majority of I.U.D acceptors came to the decision by discussing it jointly. The other family members were not even aware of the decision. Dubey and Goldein (1967) observed the husband dominance prevents the wife taking an equal part in decision making and consequently effective practice of contraception because much more difficult task than where the decision to practice contraception is mutually agreed. Study conducted in Calcutta City by Sengupta et al., (1969) revealed that there was a significant relationship between practice of family planning and spouse-communication. For example, 43 per cent who did not practice contraception 2 per cent had no communication between spouses whereas out of 47 per cent who currently practice contraception 44 per cent of them had communication on different aspects of family planning.

Khan (1979) inferred that the best source of family planning information for females is their husbands. And also he found a significant association between husband-wife combination. Sivaraju (1987), in his study of Rayalaseema and Coastal Andhra found intra-spouse communication of family planning was greater among adopters compare to non-adopters of contraception. He found a strong relationship between husband-wife communication of planning matters and adoption of contraception. The similar observations were made by Shakila Rani (1989) in her study of a village in Tamil Nadu.
Utilization of Health Services:

Utilization of health services is a very important factor, which determines one's fertility and reproductive preferences directly and indirectly. The higher the utilization of health services, the better will be the health. Ultimately reducing mortality, particularly infant mortality and morbidity, maternal mortality due to pregnancy and related deaths in the society. It is obvious that these factors will bring decline in fertility. The utilization of health facilities will depend on the distance, care taken by medical and para medical persons, and others.

Chuttni et al., (1976) in their study, factors responsible for under utilization of PHC's in three states of India found the extent of awareness on the existence of PHC decreased with the increase in the distance of the village from the PHC and came down to 64.4 per cent for the respondents from the villages beyond 5 kilometers from the PHC. Further, about 91.4 per cent of those living in villages where sub-centers were situated know about the existence of sub-centres while only 60 per cent of those living in peripheral villages had some knowledge of the sub-center in their areas.

Chuttni (1976) found that the utilization of PHC and health sub-centres was restricted to 5 Km radius. The qualities of medical care also poor. He found that dissatisfaction on PHC services is the major cause for the under utilization of PHC's. He observed that a single majority of
respondents (61.8 per cent) expressed “no relief” and 46 per cent of them reported that they have to ‘buy medicines outside’, 21 per cent of them complained of ‘impersonal and rude behaviour of medical staff’.

John Hopkins Rural Health Project (1976) has indicated that only 10 to 20 per cent of rural people utilized the PHC services. Rao (1977) found that the services rendered by the PHC are inverse proportion to the distance from the centre. A study conducted by Jorapur (1979) in Yalendur PHC in Karnataka revealed that 23.4 per cent of pregnant women received iron-folic tablets.

In India and in most of the developing countries delivery is conducted by relatives and untrained dais and not by trained dais, nurses or doctors. World Health organization (1984) observed that pregnant women were likely to be attended by traditional midwives rather than by any other category of health personnel. A study conducted in Kurnool district of Andhra Pradesh by Jain and Visaria, (1988) revealed that 92.5 per cent of all births were delivered at home. The reasons are convenience (91.5 per cent), hospital being far away (6.3 per cent), fear of hospital (1.5 per cent), and others (0.7 per cent). Khan, (1988) under taken a study in Uttar Pradesh (Agra, Mathura, Gaziapur) and found that a majority of births were attended by family members and neighbours (63 per cent) about 31 per cent by untrained dais, and only 7 per cent of births were assisted by trained professionals in the year 1982. The percentage of births attended by
trained health personnel in 1984 in India was 33 per cent, in Pakistan 24 per cent, Nepal 10 per cent, Butan 3 per cent, Sri Lanka 87 per cent and Singapore 100 per cent (Ross, Molzam and Parson 1989). The cause for the under utilization of PHC’s is due to long distance of service delivery units, discourtesy shown for them by health personnel, non-availability of medicine, long waiting time, lack of relief after treatment and demand of money by health personnel for the services (Reddy, 1989). All these health factors influence fertility and family planning adoption. The existence and utilization of health services have a negative impact on fertility (Nishikawa et al., 1984; Sarma M.T.R., 1985; Savitri, R, 1994).

Decision Making:

In a family who makes the decision is a vital factor for that not only in a family but also in any firm or in a country the prosperity will be determined by the person who makes the decision. The decision making will depend on the personality, socio-economic characteristics of that person or persons. Cynthia B Colyol (1991) says that the strength of the women’s voice in household decision making is an important independent variable, defining the ways in which women work and fertility are likely to interrelate”.

Many studies have shown that the greater the joint decision making of husband and wife on matters of family size, the higher use of
contraception and lower fertility. (Herbet, 1952; Westoff, 1963; Ridley, 1968; Weller, 1968; Shah, 1974; Mukherjee 1975; Chaudhury, 1976; Khan & Singh, 1987). Herbet (1952) suggested that egalitarian decision making should be related to more effective use of contraception and lower fertility. Weller (1968) and Ridley (1968) in their study said that the changed role of women as a result of their participation in employment would make them more egalitarian and that they would have higher autonomy in decision making with regard to fertility and child rearing. Westoff et al., (1963) in their study found that families in which male separated himself from the family and was not involved in domestic affairs were presumably more prolific and characterized by the least use of contraception.

The role of women in decision-making in reproduction has an important bearing on the success of family planning and long term reduction in fertility of a country. Rosen and simmon (1971) found that, among the currently married women in Brazil, smaller family size was associated with higher status levels for women and greater quality in family decision. M.E. Khan and Ratanjeet Singh, 1987 found that increasing of women in decision making which also be a step towards ensuring women of their rights to voluntary motherhood and in turn it proves their status. Heer & Hain (1975) in their study in greater Boston, observed that the families in which the wife exercises a greater influence tend to have fewer numbers of children. But many studies show that men have greater role in decision making than women. Holler Bach (1982) observes that within
marriage in many cultures men typically have more say than women in the decision making of using contraception and in the number of children that the couple will have. Lloyd (1993) found that when partners disagree on whether to use family planning, the men's preference usually dominates. In general, better educated women have more decision making power within marriage, including more influence over decision about reproduction and family planning (Kim et al., 1973; Williams, 1990; Renne, 1993).

Arora (1966) found in his study that respondents who claimed to participate in family decision making averaged 3.09 births, whereas those who did not participate in this process averaged 4.17 births. Audinarayana (1986) also found similar observations. Vernon et al., (1989, 1991) in their Columbian Study found that 88 per cent of the vasectomy acceptors discussed the decisions with their wives. And Goldsmith et al., (1973) found wife is the initial source of information and the person influencing the decision to adopt vasectomy in more than half of the cases.

The variables reviewed are: age at marriage, age of respondent, number of living children, preference for a son, infant mortality rate, caste, occupation, income, education, modernization, status of women, communication, utilization of health services and decision making. Under the research gaps the variables that are included in the present study are housing conditions, facilities of electricity, cinema attendance, ideal and actual family size, etc.