1.1 Review of the related literature

Important Definitions:

Literacy is one of the important social characteristics on which information is obtained on each and every individual in the census. For the purposes of census a person aged seven and above, who can both read and write with understanding in any language, is treated as literate. A person, who can only read but cannot write, is not a literate. In the census prior to 1991, children below 5 years of age were necessarily treated as illiterates. The ability to read and write with understanding is not ordinarily obtained until one has some schooling for at least some time to develop these skills. Therefore it was decided at the 1991 census that all the children in the age group 0-6 will be treated as illiterates by definition and the population aged 7 years and above only is to be classified as a literate or an illiterate. The same criterion has been retained at the census of India 2001 also. L. Ladu Singh, et.al. (2004), Course Material: UGC Refresher Course in Demography/Population Science, International Institute of Population Sciences is used for standard definitions in this synopsis.

Literacy Rate: Literacy Rate is the percentage of literates to total population of age 7 years and above.

Main Workers: Main workers are those who worked for 183 days or more in the year preceding census. Marginal Workers: Marginal workers are those who worked less than 183 days in the year preceding census. Crude female labour participation rate is the size of the female labour force in proportion to the size of total female population. A refinement in this measure is the General Female Labour Participation Rate (FWPR) where the children below 15 years and the elderly above 60 years are excluded from this measure.

The deaths under one year of age are called infants deaths. The conventional measure of Infant Mortality Rate (IMR) is defined as the number of deaths of infants per 1,000 live births. Child Mortality Rate (CMR) is a measure of similar type except that it counts the number of deaths below 5 years.
**Age-Specific Fertility Rates (ASFR):** The age pattern of child bearing in any population is best revealed by computing age specific fertility rates. The age specific fertility rate is the number of births per year per woman of a specified age.

Symbolically,

\[ n_f x = \frac{n_B x}{n W x} \]

**Total Fertility Rate:** It is overall summary measure of fertility and is obtained by summing the age specific fertility rate for each age of the child bearing span. Symbolically,

\[ \text{TFR} = 5^* \sum_{x=15, 20,----,40} f x \]

**Mean Number Of Children Ever Born Per EMW in Age-Group 45-49 (MNB):** The MNB Per Ever Married Woman, Who have completed the age of Childbearing, That is those in age-Group 45-49 is Considered as a standard measure of the period Fertility Rate.

**Percentage Urbanization (PU)** is ratio of percentage urban population of an area to total population of an area.

As per the Government of India, poverty line for the urban areas is Rs. 296 per month and for rural areas Rs. 276 per month, i.e. people in India who earn less than Rs. 10 per day. As per GOI, this amount will buy food equivalent to 2200 calories per day, medically enough, to prevent death. State specific poverty lines are applied on the NSSO’s household consumer expenditure distributions to estimate the proportion and number of poor at state level. As an independent variable we include the **Percentage of Population Below Poverty Line.**

### 1.2 Review of Related studies

To introduce the undertaken research, a review of the extant literature is presented in this section. Any study of female literacy essentially requires to illustrate in broad categories;
regional variation, religion-wise variation, social- economical-demographical variation. This section also examines the research gaps in studying female literacy.

Javali (1978) in her research “Female Literacy and Fertility” has studied correlation between literacy rate and crude birth rate using 18 states & 4 union territories estimates and found that female literacy and crude birth rate are inversely related. She has also carried out observational study on age specific fertility by literacy status of women in the rural as well as in the urban areas of the districts of Karnataka namely Bangalore, Tumkur, Kolar, Chitradurga and Shimonga districts and observed that age specific fertility rate is higher in the age group 15-24 than their male counterpart whereas literate women above 25 years of age have lower fertility than their illiterate sisters in rural areas. She has concluded that to reduce fertility, government has to put the efforts to promote literacy among women.

Srivastava (1986) made investigation to identify factors influencing female mean age at marriage. He has selected 13 explanatory variables, of which 11 variables were identified as significant in 6 different models. Female literacy was having strong influence than male literacy rate. Similarly literacy status of marriage partner, Non-agricultural employment, newspaper circulation rate have highly positive significant influence. Urbanization and per capita income are found to have weak positive influence whereas female participation in agricultural activities was having negative influence.

Jyothi and Rajaiah (1988) have identified clear discrimination in sex ratio, literacy and employment towards female in their paper titled “Female Population, Literacy and Employment- Some Observation”. They have studied trends over six decades from 1901 to 1981 in three aspects namely male female ratio, female literacy and employment as these denotes the status of women. They have pointed out that the gap between number of male and female population is increasing whereas sex ratio is decreasing. There is improvement in literacy level of female but gap/ disparity has also been increased. They have pointed out that female participation rate is low in high paid work and it is high in the low paid work. Finally they suggested that until and unless women develop awareness
as to their status in the family and the society; freedom and equal status of women on par with men cannot be expected.

**Sharma and Retherford (1990)** have pointed out in their study on the “Effects of Female Literacy on Fertility in India” based on Census (1981) data, showed that female literacy rate had a strong effect on total fertility rate. An increase of ten percentage point in female literacy rate reduces the total fertility rate by slightly less than one half children per women, about half of the effect of female literacy rate on total fertility rate is direct and about half is indirect through reduction in child mortality.

**Bowman’s (1992)** study on external benefits of education and women, says that “education enables a women to: a) acquire the ability to manage her household in a better way within the given budget constraint; b) ensure that the good nutritional standard and hygiene are maintained; c) regulate the fertility behavior in a planned way and d) contribute to the quality learning in succeeding generations.”

**Joshi (1993)** have addressed educational structure of women in his paper titled “Educational Infrastructure for Women”. He has discussed that though general educational facilities have increased but quality of education has deteriorated. Country is still facing acute problem of massive illiteracy, failure to universalize elementary education, slow progress in education and unemployment among the educated persons. The literacy rates of female had improved but still female literacy is lagging behind in comparison to male counter part. He has pointed out the regional variation, imbalances and disparities in all the sectors of education. His study focuses on Intra-sectored Resource Allocation to Education in the five year plan.

Education is a key to Progress and until Indian women are educated, they will not be able to enjoy their rights. **Yadav and Kumar (1993)** suggested in their 14 states study of “female students in India” that more efforts are required in the rural area than urban area for female literacy improvement. Literacy in the states of Rajasthan, Madhya Pradesh and Andhra Pradesh shows very slow improvements. There is large percentage of drop-out is noted in elementary as well as secondary education amongst girl which could be on account of thinking that since girls would not be required to pursue any career further and
education given to them will be fruitless. To some extent, huge drop-out rate could be attributed to social restrictions on movements of grown-up girls outside their homes. They have concluded that there is need for putting more efforts for women’s participation in professional education like medicine, law etc. where their suitability is as good as boys.

Harish (1993) has carried out analysis of the “Factors Influencing Female Participation” in economic activity in Southern region of India and he was of view that economic indicators emerge as the most important in explaining the spatial variation in female participation rates. In the urban areas of all the southern states non economic factors like Urbanization, Reproductive behavior, Female Heads of households, literacy levels of education, Marital Status turns out to be more important in explaining the spatial variations. Although no uniform pattern is observed at state level, yet economic factors like Manufacturing establishment per 1000 of women, Proportion of workers in other services, Sectoral distribution of women workers, Growth of Income, Concentration of wealth, Modernization of agriculture turns out as the most important in rural areas and non-economic in urban areas in explaining the variation in female part is certainly needs more investigation.

Kumar (1993) in his paper titled “Declining Sex Ratio in India” has studied sex composition of India’s population which declined by 11 points between 1961 to 1971 and five point decline from 1981 to 1991. He pointed out from the data on sex ratio over time that there has been serious concern in various quarters about the decline in sex ratio during the 1980’s one may say that this is a part of the monotonic trend if the 1971 sex ratio is corrected for female undercount. The decline in sex ratio may be largely due to a rise in sex ratio at birth.

Khan (1993) studied urban and rural fertility in Bangladesh and found significant negative direct and indirect effects of education of women on children ever born in both rural and urban areas. Education operates indirectly through age at marriage. Further they found that education has greater effect in urban areas than in rural areas.
Martin and Juarez (1995) found that women with no education have large families of 6-7 children, whereas better educated women have family sizes of 2-3 children using data from Demographic and Health Surveys for nine Latin American countries. Better educated women have broader knowledge, higher socioeconomic status and less fatalistic attitudes toward reproduction than do less educated women. Results of a regression analysis indicate that these cognitive, economic and attitudinal assets mediate the influence of schooling on reproductive behavior and partly explain the wide fertility gap between educational strata.

Murtha, Guio and Dreze (1995) in their district level study of 14 states in India found that the variables which have a significant impact on fertility are female literacy and female labour force participation.

The adverse impact of illiteracy of females on infant survival was cited by various authors. Nair, Kutty, et.al. (1995) found a highly significant association between female literacy and infant survival among Hindus and scheduled castes/tribes as well as a reduction in mortality among the infants of literate Muslim mothers was observed in their community based prospective study titled “Female literacy as a determinant of socio-demographic status and infant survival” in rural areas of Dakshina Kannada districts of Karnataka state. This study gave one striking observation in all communities was that a greater proportion of literate women stay back at home as housewives whereas a high proportion of illiterate female go for work especially unskilled in nature. Definitely this is not by choice but poor economy of the family.

Martin (1995) studied the relationship between women's education and fertility using data from the Demographic and Health Surveys for 26 countries and found that higher education is consistently associated with lower fertility but a considerable diversity exists in the magnitude of the gap between upper and lower educational strata and in the strength of the association. She concluded that education enhances women's ability to make reproductive choices.

Sandhu (1996) has studied Punjab village data and found five variables that were significantly correlated with fertility were duration of marriage, experience of child
mortality, caste, household type and the preferred number of children whereas female literacy, family standard of living and women’s attitude towards contraception are not significantly correlated with fertility. She concluded that “This means that these variables were not really independent and were influencing fertility through other variables or that their relationship with fertility was not linear.”

McClamroch (1996) studied total fertility rate, women’s education and women’s labour force participation using cross national data of 71 countries. His modeling suggested that the percentage of women in the labour force is directly related to total fertility rate whereas the average number of years of education for women is indirectly related to total fertility rate.

Abadian (1996), in her study of 54 developing countries, finds that female autonomy which operational through age at marriage of women, differences in age between spouses and rate of secondary schooling among women has a negative and significant impact on fertility. Further she observes that education acts directly on fertility rates and works through infant mortality rates to decrease fertility.

Desai (1998) studied the effect of maternal education on three markers of child health: infant mortality, children's height-for-age, and immunization status using data from the first round of Demographic and Health Surveys for 22 developing countries and found that there is a strong correlation between maternal education and markers of child health as well as maternal education remains statistically significant for children's immunization status in about one-half of the countries, even after individual-level and community-level controls are introduced.

Acharya (1998) studied mainly NFHS data and Government Publications and found that gender disparity against women exists in health, economic and socio-cultural aspects. In all aspects, the states vary widely. On the combined scale, Rajasthan appears to discriminate against women the most, while disparity against women is the least in Kerala. Goa and Kerala are highly developed in their social structure while social development in other states has just been started. Fertility transition in U.P., Bihar, Haryana and M.P is far away from the best state Goa. Social development, female
autonomy and fertility transition, all three aspects are found to be important correlates of gender disparity while economic development seems to have no say in this respect.

Panopoulou and Tsakloglou (1999) investigated the relationship between fertility and number of socioeconomic factors among 13 developed and 55 developing countries. They found that there is a negative relationship between fertility and female education and a positive relationship between fertility and levels of infant mortality.

Parasuraman, Roy et al. (1999) studied National Family and Health Survey (1992-93) and seen profound effects of women’s education on fertility. This study found that among the different socio-economic variables examined, the net effect on fertility was the maximum from women’s education. It has substantial impact on the demand for children and fertility regulation.

The Public Report on Basic Education in India (1999) by a probe team based on Census (1991) and National Family Health Survey (1992-93) found that educational achievements in India are highly uneven. General literacy rates vary in great deal by region, class and caste. Illiteracy has been virtually eliminated from most advanced state like Kerala while states like Bihar, Madhya Pradesh, Rajasthan and Uttar Pradesh are the worst performer.

Mishra and Retherford (2000) study estimates levels of child malnutrition and found that more than half of all children under age four are malnourished. Children whose mothers have little or no education tend to have a lower nutritional status than do children of more-educated women, even after controlling for a number of other—potentially confounding-demographic and socioeconomic variables. Further they suggested that women’s education and literacy programs could play an important role in improving children’s nutritional status.

Agnihotri (2001) in his paper titled “Declining Infant and Child Mortality in India: How do Girl Children Fare?” analyzed time series data on infant and child mortality of major Indian states which indicates a more rapid decline in male mortality rates as mortality levels decline. However many states known for their gender bias do show evidence of the
'substitution effect’, i.e. more rapid decline in female infant and child mortality rates in the wake of increasing incidence of pre-natal selection. He is argued that a mere improvement in mortality rates among surviving girl children does not mean an improvement in the quality of their survival.

Akmam (2002) reviews all those papers which raise issues on women’s education and fertility. Review of eight papers reflects determinants of fertility in Developing Countries. Review of 4 articles discuss the various intervening variables like income level of households, education level of husband, place of residence etc through which education of women affects fertility. In Bangladesh review study shows a significant and inverse relationship between education and fertility.

Buragohain (2003) has study on female literacy in the northeastern region of India. An attempt was made to know relationship between high female literacy rate and Infant Mortality Rate, mean age of marriage, total fertility rate using spearman’s correlation coefficient. Female literacy has positive impact on the decline of infant mortality rate and the child mortality rate in all the north-eastern states except Meghalya. But the same impact was not observed in all the states in case of total fertility rate and mean age of marriage.

Singh (2003) in her analysis “Study on high mortality of children in Melghat region considering economical and demographical factors” has found that in Melghat birth rate as well as death rate of children are very high in this region and most of the people get married at the age of 18 to 20 years and immediately after one year of marriage, they bear a child. Also, the problem of malnourishment is very severe.

Sebastian and Navaneetham (2007) in their study “Gender, Education and Work: Determinants of Women's Employment in Kerala” showed that education, age, marital status, place of residence, economic status and husband’s employment turned out to be significant in determining women’s entry into the work force. Within education, diploma and professional education shows maximum odds ratio where women with diploma and
professional education have six and eighteen times more probability respectively to be employed compared to women with higher secondary or secondary education.

**Vaithilingam, et.al.(2007)** in their study of “Impact of Female Literacy on Vital Rates among Indian States and Union Territories” have examined the levels of female literacy rate crude birth rate, crude death rate, infant mortality rate and natural growth rate as well as relationship of female literacy rate with each above mentioned vital rates among Indian states and union territories and identified the states which have high female literacy rate such as kerla, Mizorum, Chandigarh, Goa, Andaman and Nicobar Islands, Delhi and Pondicherry account for low birth rate and low infant mortality rate whereas **BIMARU** states Bihar, Madhya Pradesh and Utter Pradesh except Rajasthan have shown inverse relationship between female literacy and each & every vital rates.

**Sharma (2007)** has studied level of literacy among females in districts of Punjab in total, rural, urban and scheduled caste and Gurdaspur has shown remarkable growth in female literacy in all the areas from 1991 to 2001. In the same paper trend in drop-out and enrollment of girl show negative attitude towards girl child education.

**Radha Devi (2007)** in her district level study titled “Timing of Marriage in India: Vision and Reality” has found that in districts with low literacy rate, the variation in the percent share of marriages below legal minimum age at marriage is from zero in three districts to 83.9% in Lalitpur. In districts with medium literacy rate this variation is from zero in five districts to 82.4 % in Shajapur while the corresponding variation for the high literacy rate group is from zero in 8 districts to 50% in Rajnandgaon of Madhya Pradesh.

**Rani (2010)** highlights 1) Factor responsible for low literacy rates among women 2) CEDAW-1979, UNICEF, Report in 1992 conference on Education for All Girls, Beijing Conference, The World Conference on Education for all sponsored by UNESCO, UNICEF, the International and National initiatives to promote women’s education in India. It focuses the National Development Council’s aim and Objective which primarily says increase literacy rate for persons of age 7 years or more to 85%. An attempt is also
made to show current scenario in male-female literacy differential, Percentage of Girls enrolment to total enrolment by stages and expenditure by level of education in India.

Jindal (2010) has found determinants of low birth weight of child in her survey based study. This survey research found that dietary habits, protinex, leafy vegetables consumption habits of the mother, pre pregnancy age and weight, pregnancy related health problems and total weight gain, adequacy of iron & folic acid tablets of mother and smoking/alcohol/drug consumption habits of father affect the outcome of pregnancy.

Sekhar and Jayaraman (No date) have suggested in their “A District Level Analysis of the Total fertility rate Using Indian Census Data” found that higher levels of female literacy lead to lower TFR. Male literacy was not found significant. Higher levels of spending by state governments on development, higher rates of female work force participation lead to lower TFR.

Ghosh and Usha Ram (2009) “Infant and child mortality estimates and its determining factors for social subgroups: A district level analysis” found that certain level of development coupled with literacy among women, female autonomy in terms of work participation, access to safe drinking water, proper practices during diarrhoea among children is needed to reduce infant and child mortality among schedule caste population. Factors affecting infant mortality for non schedule castes and tribe population are birth order, safe delivery, and practice of exclusive breast feeding and the interaction effect of any antenatal check up through female literacy.

F. Ram, et.al. (2009) has used the data collected on the question: Does the household have a BPL card? from NFHS-3 conducted during 2005-06 along with economic variables and wealth index in their analysis “Understanding the distribution of BPL cards: All-India and selected states”. Their analysis suggests that 44% of BPL cards (27 million) were distributed to the non-poor households in the country and three-fifth of the poorest don’t possess BPL cards. Further they found that the extent of misuse of BPL card is highest in Andhra Pradesh, Karnataka, Kerala, Bihar, Orissa whereas in many states poorest of poor don’t hold BPL card. Such kind of trend required more vigilant and
transient mechanism to exclude the non-poor and stringent action should be taken against all involved.

In a study on female literacy in Maharashtra, **Jindal (2010)**, an attempt was made to understand trend in levels of educational development among females, disparity index and to discern the factors responsible for high female literacy rate and found that factors responsible for increase in female literacy rate are increasing male literacy rate, slowly decreasing female work participation as marginal and main worker, decreasing total fertility rate and increasing mean age at marriage.

**Ahmed (2011)** in her study of “Female Work Participation and Literacy in Maharashtra”, ranked districts according to their work participation and analysed inter-districts variation. The study reveals that female literacy rate, proportion of urban population, proportion of Muslim population, per capita GDDP are having a significant effect on FWPR in the total population. Female literacy and Muslim Population are found to have a significant effect on FWPR in the rural population while in urban data only proportion of Muslim population is found to be significant.

**Imam (2011)** in “Education for Sustainable Development: Issues and Challenges in India” examined the issues and challenges & status achieved relating to education for sustainable development in India and made basic recommendations in education for sustainable development are Improving Basic Education, Reorienting Existing Education, Public Understanding and Awareness about environment and proper training.

**Khan and Pandey (2012)** in their survey based study in Dhanipur block of district Aligarh titled “Dropout is black spot on Indian Education” have identified that low family income, involvement in activities of domestic chores, care of younger ones, lack of interest in study, ill health of girl, negative attitude of society, fear of teacher, mental disability and early marriage are prominent reasons of girl’s dropout from schools.

**Nathwani(2012)** has concluded in his study titled “Education for Women Empowerment” that in reality no country has managed to eliminate the gender gap. Rights, responsibilities and opportunities of individuals will not be determined by fact of
being born male or female but stage where both men and women should realize their full potential.

Tariq and Waquas (2012) have identified that poverty, inadequate school facilities, lack of female teachers, gender bias in curriculum are the factors influencing gender inequalities in school enrollment in India in their study “Gender Disparity in Education in India”.

Thankachan (2012) studied “Empowerment of Women for Sustainability: An analysis of relationship between literacy rate and women’s status in India” and found that Female literacy has positive relationship with sex ratio, women’s economic status index, women’s social status index, women’s health status index, gross gender development index and negative relationship with gender disparity index which further indicate that enhancement of literacy is a better way for gender development and promoting the status of women in the society.

Singh, et.al. (2012) have discussed in their paper titled “Higher Education in India: A commodity for the rich and elite” that due to privatization of education in India the cost of higher education is increasing day by day. Fee structure and other charges are becoming out of reach of low income group and medium income group, which in turn affecting education of female child due to commercialization of higher education.

Sharma (2012) in her study “Are Women Really Empowered: A Case Study of Yamuna Nagar District” have found that educated women are working for upliftment of their family status hence getting respect from family and husband, can make decisions about their & kids lives and also participate in political decisions.

Jindal and Pandey (2012) have found in their study “Statistical Study of Female Literacy and Selected Socio-Economic and Demographic Variables in Uttar Pradesh” that the Female literacy rate of 29 districts were around the threshold level in 2001 but which was crossed by 28 districts within a decade showing a silver lining in the area of female education. Further found that factors responsible for increase in female literacy rate are increasing male literacy rate, slowly decreasing female work participation as marginal
and main worker, low impact of urbanization, weak participation by percentage of below poverty line families in support of female education and gradually increasing mean age at marriage.

**Butool (2012)** has found in his study “Levels Of Education and Work Participation of Females & their Consciousness of Birth Control” that general fertility rate decreases with increase in the level of education of females both in the nation as well as in the state. Further observed that work participation rate of females is low both at national level (25.60 per cent) as well as the state level (16.50 per cent). Apart from this, main workers show lower general fertility rate than the marginal workers both in India as well as in Uttar Pradesh.