Chapter-1

INTRODUCTION

The first chapter of this research work is introductory. It contains various elements of the study, namely, an introduction to the demographic profile and family health, an over view of the study area the State of Chhattisgarh, importance of the study justifying why this study is critical, aims and objects of the study, the underlying hypotheses to be examined, various sources of data on which the study does base, the research design for collection of primary data, and statistical techniques used for data analysis so that the study outcomes could be scientifically valid.

1.1 An Introduction to Demographic Profile and Family Health

Demography\textsuperscript{99} is the scientific study of human populations including their size, composition, distribution, density, growth, and other demographic and socio-economic characteristics, and the causes and consequences of changes in these factors over time. This task is facilitated by the knowledge of various vital events which remain operational all the time in a population like births, deaths, marriages, migration and morbidity. The family health\textsuperscript{75} refers to the state of health of the people as measured by some key health indices on fertility, fertility preferences, family planning, maternal health, child health, nutritional status of children and anaemia among women and children etc.

The rapid explosion of population all throughout the world particularly in developing countries including India is of serious concern. As land area is very much limited, per capita availability of land is decreasing day by day with the increase of population. This situation has posed an enormous pressure on natural resources, which are being exploited.
indiscriminately to meet out the ever-growing demand of human population. On the other hand, the over population has lead to poor health and low quality of life of the people among other ever increasing host of problems. This is the reason why global efforts have been initiated on war footings to contain the population problem by improving the health and well being of the people.

At international level, in view of the pressing need of sustainable development on the earth planet, the International Conference on Population and Development (ICPD) was held in Cairo, Egypt in 1994. Delegations from 179 States took part in negotiations to finalize a Program of Action on population and development for the next 20 years. This encompasses variety of population issues including birth control, family planning, infant mortality and the education of women.

In 2001, recognizing the need to assist impoverished nations more aggressively, United Nations’ member States adopted Millennium Development Goals (MDGs) that aim to spur development by improving social and economic conditions in the world's poorest countries. The MDGs are eight international development goals that 192 United Nations (UN) member States and at least 23 international organizations have agreed to achieve by the year 2015. They include eradication of extreme poverty and hunger, achieving universal primary education, promoting gender equality and empowering women, reducing child mortality, improving maternal health, combating Human Immuno-deficiency Virus (HIV)/ Acquired Immune Deficiency Syndrome (AIDS), malaria, and other diseases, ensuring environmental sustainability, and developing a global partnership for development. India being a member country of United Nations, is a signatory to ICPD declaration and MDG goals.

At national front, India Vision 2020 document, prepared by Planning Commission, Government of India, New Delhi in 2002, constitutes a vision
of the country’s future identifying potentials and challenges to its future progress in different sectors of the national economy. For this, nine nodal points have been decided which include peace, security and national unity, food and nutritional security, jobs for all; knowledge, health, technology and infrastructure, globalization, good governance and work values.

The population of India as per Census 2011 provisional report\textsuperscript{16} is 1.21 billion, more than a sixth of the world’s population. India occupies 2.4 percent of the world land area and supports over 17.5 percent of the world’s population. After China having population 1.34 billion, India is the second largest country in the world in terms of population. If the current rate of population growth continues, India is projected to be the world's most populous country by 2025 surpassing China. This signifies the huge population burden the country is carrying.

With long-term objective of population stabilization by 2045, India formulated National Population Policy (2000)\textsuperscript{58} that aimed at achieving 14 national socio-demographic goals by 2010 to bring TFR to replacement levels. Again, just two years later, National Health Policy (2002)\textsuperscript{49} came into being to meet out national health goals.

At State level, a very ambitious yet attainable attempt Chhattisgarh Vision 2010\textsuperscript{36} was formulated by the Chhattisgarh government in order to ensure rapid and balanced progress of the State. The vision statement very clearly charts out the road map in terms of sector-wise goals and strategies leading to the social and economic development of the State’s citizens.

Chhattisgarh is also one of the beneficiary States of the country where National Rural Health Mission (NRHM),\textsuperscript{60} a scheme launched by Government of India in 2005 with the objectives of improving reproductive health, and strengthening overall health care delivery system as various components of family health, is going on in the State.
The latest figures indicate that at least 9 States and Union Territories of India are demographically good performing States having their Total Fertility Rate (TFR) level below 2.1 children per mother. The Chhattisgarh State with TFR 2.6 (NFHS-3)\textsuperscript{42} lies among rest of the States and Union Territories of the country having TFR more than 2.1 children per mother, which are categorized as demographically poor performing States/ Union Territories. It is worth here mention that in order to effect demographic transition, the stage of replacement levels of fertility, that is, TFR of 2.1 children per mother need to be achieved. In this backdrop, the present study has policy relevance too among others.

The people of any State are its greatest asset. Therefore they need to be provided with means of healthy and economically productive life. Improving the quality of life of the people through sustainable development of the State is one of the most priority areas of a State. The increase in population adversely affects all attempts to improve the quality of life of the people. Therefore, for speedy social and economic advancement of the people, curtailing rapid population growth through substantial reductions in fertility and mortality is critical. This goal can be achieved by striking a balance between demographic and health dynamics, the State is passing through.

The need, significance and importance of the present research work is self justified by the fact that host of initiatives have been recently undertaken nationally and internationally through various programmes to address the demographic, population and health related issues of the people. International Conference on Population and Development (ICPD), Millennium Development Goals (MDGs), India Vision 2020 document, National Population Policy-2000, National Health Policy-2002 and Chhattisgarh Vision 2010 etc. are some of the programs to name.
The research studies on demographic status would immensely help in understanding the present levels and trends of various demographic processes and related parameters. Similarly, the studies on family health would reveal status of access to health care services and the status of health of the people as determined by related health indicators.

In this backdrop, the present study is a modest attempt to critically examine, analyze and bring forth the key demographic, family health and related issues prevailing in the State of Chhattisgarh. The study would also provide valuable input and feedback to various programs going on in the State. The policy makers and program managers at government and non-government levels, and also researchers in concerned areas can also use the study outcomes. Also, the research outcome would further help strengthen State’s population, demographic and health data base.

1.2 Chhattisgarh State: An Overview

The State of Chhattisgarh came into being on 1st November 2000 as the 26th State of the Indian Union. In undivided Madhya Pradesh, Chhattisgarh comprised of 7 districts only. Chhattisgarh is one of the few landlocked States of the country. With Raipur as the State capital, Chhattisgarh is located in the heart of the country. Chhattisgarh State shares its borders with six other States of the country namely Bihar, Jharkhand and Uttar Pradesh in the north, Andhra Pradesh in the south, Orissa in the east and Madhya Pradesh in the west. The north and south parts of the State are hilly, while the central part is a fertile plain.

Chhattisgarh is one of the newly formed States of the country comprising 2.02 percent of India’s population (Census 2001). In terms of population size, its rank is 16th among all the States and Union Territories of India. Its total land area is 1,35,195 sq. km. which is 4.11 percent of the total land area of the country.
Chhattisgarh has one of the richest bio-diversity areas in the country. The green State of Chhattisgarh is endowed with forests too which is a valuable asset of the State. About 44 percent land area of the State is covered with forests. The bulk of its people are concentrated in the central plains region, while the northern and the southern regions have a considerably lower density of population. About 80 percent people of Chhattisgarh depend on agriculture. Chhattisgarh is called the rice bowl.

It is a land of opportunities. Chhattisgarh is the richest State in mineral resources with all major minerals including diamonds available in abundance. Major industries in steel, aluminum and cement are present in the State. About 20 percent of the country’s steel and cement are produced here. Over 66 percent cement production in the country comes from this State. There are a number of industrial growth centers in the State which host hundreds of industrial units providing employment opportunities to millions of people.

Chhattisgarh has large supply of power which can be easily transmitted to any of the grids of the country. Thus the State of Chhattisgarh contributes substantially to the national economy and human resources of the country. About 90 percent of the villages in Chhattisgarh have been electrified.

The State lies at 17°46' N to 24°5'N latitude and 80°15' E to 84°20' E longitude. The entire State falls under rice-agro-climatic zone. The climate of Chhattisgarh is mainly tropical, humid and sub-humid. Tropic of cancer runs throughout the State. Yet Chhattisgarh is a land blessed with a pleasant climate as well as priceless heritage. The State has rich resources including land, forests and water. Annual average rainfall varies between 1200 mm to 1400 mm.

As per Census 2001, Chhattisgarh had 16 districts having 97 tehsils, 146 blocks, 20308 villages and 97 urban centers. With land area of 135191
sq. km., Chhattisgarh is the 10\textsuperscript{th} largest state of India by area. According to 2001 census, it had a population of 20,833,803, which is 2.03 percent of country’s total population. Of its total population 79.9 percent of the people live in rural areas and the rest 20.1 percent live in urban areas. The decadal population growth rate of the State during 1991-2001 was 18.27 percent. The Chhattisgarh State is one of the sparsely populated states of India. It had a very low density of population of 154 persons per sq. km in the year 2001. Almost one third of the population (31.80 percent) belonged to Scheduled Tribes, 11.61 percent to Scheduled Castes, and rest 56.59 percent to other communities including Backward Classes.

In many ways, the women of Chhattisgarh enjoy a unique position within India. The proportion of women in the population is second highest among States in India. The percentage of females is higher than males in the rural population as compared to the urban. The general sex ratio in the year 2001 for the State was 989 females per 1000 males. In rural Chhattisgarh, the sex ratio was 1004 women per 1000 men while in urban Chhattisgarh the ratio was 932 women per 1,000 men. However, the child (0-6 year) sex ratio was 975 girl children per 1,000 boy children. The total literacy rate in 2001 of the state was 64.7 percent. The level of male literacy (77.4 percent) was more than female literacy (51.9) percent.

In Chhattisgarh, the total work participation rate in the year 2001 was 46.5 percent while the stand alone female work participation rate in the State stood at 40.0 percent showing enhanced role of women too in work for earning livelihood for the family. The main livelihood of the villagers living in rural areas is agriculture and agriculture based small-scale industries.

The development indices and the standard of living of the people of the State are quite low. The Human Development Index (HDI) value of Chhattisgarh during 2001 was 0.462, that is, 46.2 percent with 16\textsuperscript{th} rank in the tally of 35 States and Union Territories of India. As many as 38.9 percent
people of the State were living below poverty line. During this period, the per capita income per year was Rs. 7072/-.

The Social Development Index (SDI) value of urban areas was 36.3 percent with rank 16\textsuperscript{th} while for rural areas it was 28.8 percent with rank 15\textsuperscript{th}.

It is irony that in spite of abundant natural resources as mentioned above, Chhattisgarh is one of those States of the country which lags behind other States in terms of demographic transition due to high fertility and high mortality. Rapid increase in population nullifies the fruits of development in other sectors.

Health status of the population is a reflection of the socio-economic development of the State and is shaped by a variety of factors namely level of income and standard of living, housing, sanitation, water supply, education, employment, nutrition, health awareness, personal hygiene and by the coverage, availability accessibility, acceptability and affordability of health services. Though all the National Health Programmes are operational in the State, their desired results are yet to be materialized in terms of people’s health status, quality of life and well being.

1.3 Importance of the Study

The Chhattisgarh State is one of the newly formed States of the country. Today it is only a bit over one decade old. It is irony that despite of its rich bio-diversity and abundant natural resources, the Chhattisgarh State is characterized by low standard of living of its people and a very low human development index. This ground reality makes the State as one of the least developed States of the country.

The lack of basic amenities of life, wide spread poverty, high fertility and mortality especially infant and child mortality, high level of malnutrition in children, and very high level of anaemia in women and children are
several areas of serious concern which reflect very poor health and overall well being of the people of Chhattisgarh.

About one-third (31.8 percent) population of the State is tribal population including Primitive Tribe Groups (PTGs). The benefits of all round development and modernization that has taken place in the recent past have yet to reach to these under privileged and most vulnerable communities. These tribes need special attention for their over all socio-economic development and health care.

Looking to the present population, demographic and health scenario the State of Chhattisgarh is passing through, it becomes absolutely necessary to come out with policies and programmes to timely address the concerns that are adversely impacting the lives of the people.

With this background, the present study of policy relevance has been undertaken. The study would attempt to critically highlight the key population and health and other related issues in the State of Chhattisgarh that directly or indirectly impact the health, well being and quality of life of the people. Government and non-government institutions and persons working at different levels in health sector from global to local may use the study findings, and can play vital role in the over all development and prosperity of the State and its people.

1.4 Objectives

The study has the following main objectives:

- To present an overview of demographic profile and the state of family health in Chhattisgarh.
- To analyze and discuss the levels and trends of various key demographic and family health parameters of the State.
- To analyze and discuss the knowledge and attitudes of the people towards demographic and health issues.
To carryout Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis in view of various key demographic and family health outcomes.

Based on the outcomes of the study, to draw conclusions and give suggestions to help policy makers, planners and program managers in identifying priorities, devising appropriate strategies and interventions to address population, demographic and health related issues and concerns prevailing in the State so that the quality of life of the people and their overall well-being could be improved.

1.5 Hypotheses

To give a proper direction to the proposed study, the following working hypotheses have been set up.

1. During the past century (1901-2001), the population scenario of the State improved significantly.
2. During the period 1999-2010, the demographic scenario of the State improved significantly.
3. During the period 1998-2006, the family health scenario of the State improved significantly.
4. During the period 1999-2010, there has been positive and significant impact of family health status on demographic profile of the State.

1.6 Data Sources

The proposed research study is primarily based on the secondary data. The Census data of Chhattisgarh State\textsuperscript{15} for the past 100 years from 1901 to 2001, and Sample Registration System (SRS)\textsuperscript{91} reports from 1999 to 2010 have been used in order to present the levels and trends of demographic profile of the State.

On the other hand, Chhattisgarh National Family Health Survey (NFHS)-2\textsuperscript{40} data conducted in 1998-99 and NFHS -3\textsuperscript{42} data conducted in
2005-06, have been utilized to study the levels and trends of the family health status of Chhattisgarh. Primary data have also been collected from Surguja and Raipur districts of the State to supplement the qualitative part of the study, whose details have been described in study design heading.

1.7 Research Design

In order to supplement the qualitative part of the study, primary data on knowledge and attitude including the opinion and perceptions of the people on key demographic and family health variables have been collected using cross-sectional study design\textsuperscript{102}. For this purpose, one tribal district Surguja and another non-tribal district Raipur have been purposely selected out of the then sixteen districts of the State.

Multistage sampling\textsuperscript{78} method at district, block, village and household levels was used to select households, the ultimate units of the survey. Of all the 14 blocks of Raipur district, one block was randomly selected, it was Dharsiwa block. Next, of all the 86 villages of Dharsiwa block, 10 villages were randomly selected, they were Akoli (Madhar), Tekari, Siltara, Serikheri, Kachana, Dharsiwa, Bhatgaon, Deopuri, Temari and Silyari. Again, from each of these 10 villages, 20 households, each household having at least one currently married woman age 15-49 years were selected. Thus a total number of 200 such households were selected and surveyed from Dharsiwa block of Raipur district.

Similarly, of all the 19 blocks of Surguja district, one block was randomly selected, it was Ambikapur block. Next, of all the 77 villages of Ambikapur block, 10 villages were randomly selected, they were Surgawan, Taparkela, Nawanagar, Gangari, Rajpuri, Kanchanpur, Sonepur, Sundarpur, Khajuri and Bhagwanpur. Again, from each of these 10 villages, 20 households, each household having at least one currently married woman
age 15-49 years were selected. Thus a total number of 200 such households were selected and surveyed from Ambikapur block of Surguja district.

Thus in all 200 households were surveyed from Raipur and Surguja districts of the State. The respondent in each household was youngest currently married woman age 19-45 years. The field survey was carried out during 1st January to 30th June, 2011 to collect primary data using schedules. A copy of the four-page schedule used in the survey has been annexed at the end of the thesis.

1.8 Statistical Techniques

For the determination of optimum study sample size\(^5\) to collect the primary data, the following formula has been used:

\[ n = \frac{z_{1-\alpha/2}^2 \cdot p \cdot (1-p)}{d^2} \]

where

\[ n \] = sample size

\[ z_{1-\alpha/2} \] = value of z variate at 100(1-\(\alpha\))% confidence level

\[ p \] = proportion of the study variable

\[ d \] = absolute precision

Taking \[ z_{1-\alpha/2} = 1.96 \] (at 95% confidence level)

\[ p = 50\% \] (giving highest sample size)

\[ d = 5 \] percentage points,

sample size,

\[ n = 384 \]

\[ = 400 \] (for convenience).

In order to ensure scientific validation of the study outcomes, the data analysis has been done using various statistical tools. As indicators percentages, rates, ratios, appropriate averages, namely, mean and median, standard deviations, etc. have been calculated. The average annual exponential population growth rate\(^9\) between any two periods has been calculated using the formula
\[ P_t = P_0 e^{rt} \]

where

- \( P_t \) = Population at time \( t \), that is population at current period
- \( P_0 \) = Population at time 0, that is population at base period
- \( r \) = Exponential rate of population growth during the period \((0, t)\)
- \( t \) = Time span during period \((0, t)\)
- \( e \) = exponential, the base of natural logarithm

In case of numerical variables, the relationship has been studied using correlation coefficient formula\(^86\)

\[
    r = \frac{n \sum xy - (\sum x)(\sum y)}{\sqrt{n \sum x^2 - (\sum x)^2} \sqrt{n \sum y^2 - (\sum y)^2}}
\]

where
- \( r \) = correlation coefficient
- \( n \) = number of cases
- \( x \) = independent variable
- \( y \) = dependent variable

In case of categorical variables, the relationship has been studied using Odds Ratio\(^78\) formula

\[
    OR = \frac{\text{The odds of occurrence of an event in one set of circumstance}}{\text{The odds of occurrence of the event in another set of circumstance}}
\]

The 95 percent confidence intervals for OR involves the formula

\[
    e^{\text{LoGE OR} \pm 1.96 \times \text{SE (LoGE OR)}}
\]

However the values of odds ratios, their significance (p) values and 95 percent confidence intervals have been calculated with the help of statistical software Medcalc. Apart from the above, diagrammatic presentations like bar diagram and graphical presentations like line graph have also been used in order to make the observations easily understandable.