Health is one of the most valuable assets for human beings. Good health refers to freedom from any illness and the ability to realize one’s potential. Health, therefore, can be best explained as the vital basis for defining a person’s sense of wellbeing. Increasing the health standard of people is an end in itself a fundamental goal of economic development. At the same time it is also a means to achieve other goals also such as poverty reduction. The linkages between economic growth and health are much stronger than we generally understand. The burden of disease in some developing countries stands as a barrier to economic development and therefore must be addressed effectively in a development strategy (WHO, Commission on Macroeconomics and Health (Sachs, 2001). Health care of every individual, especially of women and children is especially important for the overall economic development of a nation. According to Amartya Sen (2014), health care is not something that is supported by economic growth but it is something that supports economic growth. Health care means not only medical care but also all other preventive care aspects too. The report by the High Level Group on the Lisbon Strategy for Growth and Employment (2004) states that health and health care play a major role in generating productive workforce, employment, social cohesion and hence economic growth.

The present study makes an attempt to study the maternal and child health care prevailing in India. Poor maternal and child health leads to high risk of maternal and child mortality, miscarriages and stillbirths along with the incidence of neo-natal, post-natal and infant deaths. So far as reproductive health is concerned, complications related to pregnancy and child birth are among the leading cause of mortality among women of reproductive age in many less developed countries (United Nation, 1995). The use of maternal and child health services improves the health and well-being of women and children (Short, Zhong, 2004) Which in turn depends upon the nature of general accessibility of health care of the mother such as antenatal and postnatal care, place of delivery and assistance during delivery.

Healthcare, Health and Development:

Good health increases the productivity and efficiency of human beings which in turn help to uplift their standard of living on one side and overall development on the other
side. Healthcare and development has a two-way relationship. Healthcare results in the formation of productive human capital and therefore, has an intrinsic value. Development creates higher per capita income, better standard of living, advanced medical care, improved diet pattern and nutrition which cause better health outcomes. Healthcare improves health level of children that ensures fewer dropouts from school. Healthcare and health have a long lasting effect on economic development. Good healthcare ensures long life expectancy, higher earning capacity, higher employment level, greater purchasing power and saving capacity. A highly advanced level of healthcare will make sure a continuous supply of productive and efficient human capital which plays a very crucial role in the production process.

**Importance of maternal and child health care:**

To improve the maternal and child health care is one of the important public health goal of a nation. Maternal and child health status determines the health of the future generation that can help in the prediction of next generation health challenges for the countries as well for the world. Health care during pregnancy can help to diagnose the health problems associated with pregnancy outcome and health risks in women which can prevent the future health problems for women and their child. The risk of maternal and child mortality and other pregnancy complications can be reduced by increasing access to antenatal care and postnatal care. Moreover, healthy outcomes, early identification and treatment of complication among newborn can prevent their mortality or disability and enable them to grow as a healthy adult with their full potential.

Maternal and child health care has long lasting effects on the economy of a nation and on the world as a whole. Healthy mothers can give healthy children which ultimately grow into a healthy adult. Healthy adult participate in development process more actively than an unhealthy adult. Healthy people are more efficient and productive, earn more money, having higher saving capacity, and thus ultimately affect development process positively. Healthcare is a way to empower the most deprived section of the society i.e. women and child, and thus help in poverty alleviation in some or the other way which results in the development of economy.
Objectives of the Study:

The leading objectives of the present study lie in the maternal and child health care system in Indian states. The research is conducted in the context of major Indian states. The study has the following objectives:

1. To analyze the inter-state disparities in primary health care system.
2. To describe the performance of maternal and child healthcare indicators in India.
3. To measure the relationship between maternal and child health.
4. To study the impact of economic growth on health.

Methodology and Data Source:

The present research is based on secondary data available from various government agencies. Among the important sources of data are publication of District Level Household 1, 2, 3 and 4, National Family Health Survey 1, 2, 3 and 4, Rapid Survey on Children 2013-14, Health Management and Information System (HMIS), data published by World Development Reports, Ministry of Health and Family Welfare, New Delhi etc. Apart from these various non-published literatures is also available on the subject matter and has been used in collecting and analyzing the data.

States have been taken as unit of analysis and interpretation. Statistical tools like compound annual growth rate (CAGR), percentage, mean, regression and correlation, T-test/ F-test, and Granger causality test have been used to analyse inter-state variations and to establish relationship between various maternal and child health indicators and economic growth.

Study Area:

To present a more clear picture of maternal and child health care in India, major 15 states have been selected, namely, Andhra Pradesh, Assam, Bihar, Gujarat, Haryana, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, West Bengal. The study is focused primarily on the post reform period. Most of the maternal and child health care indicators chosen by national and international institutions, such as infant mortality rate (IMR), neo-natal mortality (NNM), maternal mortality rate (MMR), ante-natal care (ANC), post-natal care (PNC), safe delivery (SD), institutional delivery (ID), immunization and vaccination,
malnutrition among and children etc. have been taken up in this study for the purpose of analysis.

**Plan of the Study:**

Present study has been planned into five chapters. In the first chapter we have introduce the topic of the study. Besides this the chapter also incorporates statement of the problem; importance and scope of the study; objectives and hypothesis; literature review; data source and methodology; and limitations of the study.

Second chapter deals with an overview of the healthcare system in India and its states. It covers the primary, secondary and tertiary healthcare. It also deals with healthcare infrastructure, healthcare personnel, tribal healthcare availability of healthcare facilities etc. Focus of the chapter is only on public healthcare system. Primary healthcare system runs as a three tier system: Sub-Centres (CHCs), Primary Health Centres (PHCs) and Community Health Centres (CHCs).

In the third chapter we have presented the maternal and child health care profile in the country, and covers data on maternal mortality ratio, antenatal care, institutional and safe delivery, immunization and vaccination, infant mortality rate, neonatal mortality, child mortality and nutritional status of children etc. it also highlights the inter-state inequality in terms of maternal and child health standard.

Fourth chapter of the study has been focused on the analysis part. In this chapter we have used some statistical tools to accept or reject our hypothesis.

The Fifth Chapter is all about the conclusion and recommendation. Healthcare, health, and healthcare system are the crucial aspect for the overall development of a country. The main findings of the study are maternal and child healthcare has a very strong relationship with the maternal and child health status. Study showed that Performance of maternal and child healthcare indicators in India and its states are not same. Southern states perform well as compared to the northern states. Economic growth and health has a bidirectional causality between them. Though there are evidences of unidirectional causality between health and economic growth but, Bidirectional causality is the dominant form of relationship between the two.
Conclusions:

The present study is concerned with An Inter-State Study of Maternal and Child Healthcare in India. Maternal and child health is a ‘productive asset’ that affects economic development significantly. MCH is taken as the basic human needs and an integral part of human welfare.

The inter-state diversity in primary healthcare system in India and its states is due to the variations in access to healthcare infrastructure and availability of healthcare personnel. Diversity in primary healthcare is depend upon the healthcare utilization, health status, and quality of healthcare resources.

The global diversity in health care between 10 selected countries, five from the developing world and five from the developed world are found the variation in health expenditure, public health expenditure, and health status (Life expectancy at birth, MMR, and IMR). In terms of health expenditure either as the share of GDP and/or public health expenditure, developed countries perform better than the developing countries.

India has performed very poorly in terms of child healthcare. Among the selected developing countries India has the highest burden of infant death. IMR in India was 40 per thousand live births per year in 2012 while for Brazil, China, Russia and South Africa it was 12.3, 10.9, 8.6 and 32.8 respectively. IMR for selected developed countries is within the single digit number. The infant mortality rate for USA was 5.9, UK 3.9, Germany 3.2, France 3.5, and Japan 2.1 per thousand live births.

The inter-state disparity in primary healthcare in India is also very diverse because of underutilization on healthcare resources. India with 16 percent of world population accounts for almost 30 percent of infant and child death in the world. Rural people mainly depend upon the primary health care or we can say that Primary health care centres are the main healthcare seeking resource than any other supporting healthcare centre. If we consider the percentage of average population coverage as a measure of inter-state diversity then in the selected states the diversity is very high.

Only four states namely Gujarat, Kerala, Rajasthan and Tamil Nadu have less than minimum population norm coverage because these are the developed states and have high living standard, high literacy level, and per-capita income except Rajasthan
where per-capita income is below the national average of per-capita income. People go to the secondary and tertiary healthcare for follow up and continued treatment and the primary healthcare facilities remains under-utilized. As a result, secondary and tertiary healthcare centres become overused leading to poor quality services (Ministry of Health and Family Welfare, Report, Kerala, 2016).

Two states namely Orissa and Punjab fulfill the prescribed norms of PHCs. Andhra Pradesh and Karnataka cater to a lower population than the fixed norm of SCs. Apart from these states, some states are those where average population coverage is above the fixed norm of population coverage such as, Assam, Bihar, Madhya Pradesh, Maharashtra, Uttar Pradesh and West Bengal.

India is a big country and has distinct regional features. Every states has a unique quality in comparison to other states. The general economic and social profile of each state is reflected by and large from the living standards and health standards of the concerned states. The comparative statistics reveals that there is widespread disparities even within the states. Among the states Kerala, Tamil Nadu, Andhra Pradesh etc. are performing better than the states of Uttar Pradesh, Bihar, and Madhya Pradesh etc. There are huge disparities in terms of infant, child and maternal mortality in major Indian states. This is so because in states like Andhra Pradesh, Kerala, and Tamil Nadu the public healthcare infrastructure and healthcare facilities are well established than in the states of Uttar Pradesh, Bihar, and Madhya Pradesh. Lack of infrastructure and healthcare facilities make poor in terms of health standard.

The study reveals that the maternal and child health profile is poor in the country, as well as in the international perspective. The southern states have immense human resource capital, higher living standard, advanced technical knowhow etc. but in northern states illiteracy, lower living standard is still prevalent. India faces more healthcare burden than Developed as well as developing countries namely Sri Lanka, Brazil, and South Africa etc. India stands in the queue of the poor countries like Bangladesh and Nepal in many healthcare aspects. It is clear that this is so because more than one third BPL population stands at the starvation line and the remaining proportion of population is not able to bear the huge medical expenses and thus always remain in the grip of poor health. The situation becomes more severe due to government’s passivity to this crucial sector. The government’s passivity is reflected
through the budgeting or public healthcare expenditure. It is only 1.4 percent of total GDP that Indian government spend on this crucial sector. Consequently, country experiences lack of healthcare infrastructure, healthcare facilities, healthcare manpower etc. which ultimately turns into low LEB, and high MMR, IMR, CMR, low nutritional value, etc.

The correlation coefficient between child health (IMR) and maternal healthcare explains the importance of healthcare for women and child health. It is found that all the healthcare variables have strong negative correlation with IMR and MMR except under-five mortality (U5MR), safe delivery (SD) and institutional delivery (ID). Meaning that increased utilization of healthcare automatically increases the health standard.

Independent t-test has been applied for the significance of maternal and child healthcare between two groups i.e. group X and group Y on the basis of IMR. Group X consist those states where IMR is of higher rate as compared to group Y. while applying t-test we have assumed that there is equal variances. So the t-test under equal variance have used in the study. Consequently the t-value under equal variances is rejected for all the healthcare variables under consideration under the null hypothesis i.e. there is no difference of mean of healthcare variables between the 2 groups.

Simple linear regression has been applied to check the effect of maternal health on child health. We have set a panel data for six point of time. Infant mortality rate has been taken as the dependent variable and maternal mortality as independent variable. If we consider the elasticity coefficient as a measure of level of effect of maternal health on child health then in the child health standard maternal health plays a dominant role. The model shows R-square value (0.6785) meaning that 67 percent variation in the dependent variable is explained by the independent variable. The positive coefficient value (.1343) indicates that maternal and child health have positive relationship. Coefficient value of .1343 at 5% level of significance demonstrates that a 100 percent increase in the maternal mortality increases infant mortality by a rate of 13 percent. Value of coefficient is very high showing that infant health is affected by other factors also such as living standard, family income level, healthcare system, female education level etc. factors which have not been considered in our study. This will create a new line of research in which researcher can find the
effect of these factors on child health. The causes of infant death may be various types of infections (neonatal tetanus, pneumonia, and diarrhea), premature birth and birth injuries, maternal malnutrition etc. Infant deaths can be controlled if steps are taken to provide basic healthcare services to mothers before, during and after pregnancy. A healthy mother takes care of her baby more effectively than a mother who suffers from illness. Mothers play a prominent role in the nutritional status of children by producing household food. Therefore, physical and cognitive development of children totally depends on the health status of their mother. In the developing countries, mothers play a critical role in nurturing, socializing, and educating children. Maternal deaths lead to infant deaths which in turn leads to a fall in the size of future labour force and/or human capital.

We applied Granger causality test to the selected states in order to find out the relation between GSDP and health status (IMR). We have applied the test individually on each state and to find out that GSDP affects IMR and vice versa in each state. In our test we have found that the leading type of causality is bidirectional meaning that 6 states (Bihar, Gujarat, Haryana, Karnataka, Rajasthan, and Tamil Nadu) out of 15 selected major states show bidirectional causality. In these states GSDP affects IMR in turn IMR also affects GSDP. For one way causality, relationship generally runs from GSDP to IMR. Five out 15 selected states showing the unidirectional causality from GSDP to IMR. The states are Andhra Pradesh, Assam, Kerala, Uttar Pradesh, and West Bengal. One way causality also runs from IMR to GSDP but the magnitude is lower as compared to the bidirectional and unidirectional causality from GSDP to IMR. Only 4 states namely Madhya Pradesh, Maharashtra, Orissa, and Punjab out of 15 selected states have the causality from IMR to GSDP.

Our contribution to the existing literature is to show the relationship between economic growth and health. The present study found strong evidence of bidirectional causality between economic growth and health standard. A further prospect of this type of study has emerged here to investigate the possible reasons for bi-directional and unidirectional causality between GSDP and health standard.

**Future Prospects of the Study**

During the study we have found many areas that need to be explored. As per the limitation of data and time and to maintain the main track inflow to get meaningful
result these areas have not been included in the study and are briefly explained below for further research. Hopefully, these areas will contribute a lot to the maternal and child healthcare. These are as follows:

Health of mother and child depends on many factors others than the healthcare system. They are assimilated to many factors. Study takes into account only the primary healthcare system which consists of three sub heads such as SCs, PHCs, and CHCs leaving behind the other important areas such as water supply, housing facility, sanitation, income, education etc. These factors also need to be exploration.

This study examines only the inter-state diversity in the healthcare system. Within the states diversity is also exists between rural and urban areas. The present study does not take into consideration this aspect of inequality. It is repeatedly cited that rural areas contribute more to the maternal and child mortality and consequently. Rural-urban disparities also need to be assessed for a more meaningful understanding of health of India.

This study takes into consideration only 15 major states namely Andhra Pradesh, Assam, Bihar, Gujarat, Haryana, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, West Bengal out of 32 states and 7 union territories in India. Though it covers a large part of our total population but health status of the remaining population also needs to be researched.

The study takes into account the maternal and child healthcare in India and its 15 major states. In Indian perspective, schedule caste, other backward class, tribal people, some Hindu and a major portion of Muslim community constitute the most deprived and vulnerable sections and their entitlement is very poor. These communities contribute a higher portion to our low performance on the front of healthcare and health profile. So further research has to be taken especially for the most deprived section of the society and measures has to be taken to uplift these societies.

In our study, we explored child healthcare. Child healthcare differs tremendously by sex. Problems of the girl child (infant) are significantly higher from the male child. Likewise, problems of different age group mothers are entirely different from one another. The women age group 15-25 years bears greater risk during pregnancy than
other age group women. Health problems of these women and child these aspects of healthcare should also be addressed.

The study shows the relationship between maternal and child health and finds that maternal health has a positive and significant effect on child health. We take into consideration only the maternal health leaving other factors as constant. While there are many factors that contribute a larger portion to the infant mortality such as mother's education, safe delivery, antenatal care, employment level, place of delivery etc. Hence, it will give us a new direction for research to investigate the role of these factors on infant mortality.

While doing granger causality test we have investigated that between health and growth the dominating causality is bidirectional. Although unilateral causality is also found but the direction of unilateral causality is not same. For some states, it is from Health to growth and for some, it is from growth to health. Thus, further research has to be conducted on similar lines to explore the reason for causality between health and growth.