www.eprawisdom.com e-ISSN : 2347 - 9671, p- ISSN : 2349 - 0187
EPRA International Journal of Economic and Business Review | Vol - 4, Issue- 9, September 2016
Inno Space (SJIF) Impact Factor : 5.509(Morocco) ISI Impact Factor : 1.259 (Dubai, UAE)

A DEMOGRAPHIC INSIGHT OF SOME SELECTED HEALTH PARAMETERS

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ABSTRACT

Health is a critical factor in development of any country for two reasons. First, health status is a key indicator of population's welfare and second, improving the health status of population leads to greater economic productivity. Theoretical work as well as empirical evidences clearly show the positive linkage between good health, as well being of individuals and overall economic development.

In accordance with health indicators, the performance of developed countries is far better compare to developing nations. However, health indicators (viz., Crude Birth Rate, Crude Death Rate, Infant Mortality Rate, etc.) in developing nations have seen substantial improved in recent decades.

In this context, this paper tries to reveal some empirical facts for some selected health indicators of India, Gujarat and at Surat city level. The present paper is based on the secondary data set from various official sources viz., Census of India, S.R.S.., and some other official links of the Government. While examining the statistics of these health indicators it has been found that over a period of time there is an improvement in these parameters at all levels. However, it is worth noting that the performance of these indicators for Surat city is better compared to Gujarat and at India level.

KEY WORDS: *Crude Death Rate, Crude Death Rate, Infant Mortality Rate, Maternal Mortality Ratio.*

I. INTRODUCTION

Health is a critical factor in development of any country for two reasons. First, health status is a key indicator of population's welfare (Sen,1985) and second, improving the health status of population leads to greater economic productivity (Strauss, J. & Ducan, T., 1995). Health status can also affect education outcomes (Glewwe P, & et.al.). Theoretical work as well as empirical evidences clearly show the positive linkage between good health, as well being of individuals and overall economic development. It establishes that investment in health of human beings creates qualitative human capital.

Paine and Tijam argue that "Health is basic human entitlement to which all should have equal access and an equal right, irrespective of nationality, residence, wealth and social position, for the achievement and maintenance of which everyone must be concerned, with doctors and other professional health workers playing a major and essential role, but not necessarily the predominant one".

The Universal Declaration of Human Rights established a breakthrough in 1948, by stating in Article - 25, "*Every One has the Right to a standard of living adequate for health and well being of himself and his family....*" The preamble to the WHO constitution also affirms that it is one of the fundamental rights of every human being to enjoy "*the highest attainable standard of*

health." The concept of right to health is a broad term which includes several rights, viz, right to medical care, right to responsibility for health, right to a healthy environment, right to food, right to procreate (family planning , sterilization, legal abortion), and rights of deceased persons (determination of that auto spices, organ removal) (Mohammed A, 2007). Over the years it has come to be accepted that life does not only mean biological existence but the life of a dignified human being with all its concomitant attributes. This would include a healthy environment, life skill, education, food, nutrition and effective health care facilities.

Health Economics is becoming a subject of increasing significance particularly in developing countries primarily because of – (a) "an economic climate where resources are extremely scare and decisions on priorities are crucial but difficult; (b) a growing appreciation among health professionals and policy makers that health economics and economists can help them formulate policies and make decisions; (c) the increasing maturity of the sub disciplines of health economics and; (d) the growing of interest among economists and others applying their economic skills to health issues" (Lee & et.al., 1983).

II. SIGNIFICANCE OF HEALTH

Here, it should be noted that health is important in three distinct ways: (a) it has intrinsic importance; (b) it has an instrumental importance at the personal and social levels; and (c) it promotes empowerment of people. In intrinsic sense health is important because it is a direct measure of human well beings. It is a fulfilment of life. Being healthy is a valuable achievement in itself. The 'basic needs approach' considers health as a basic need along with food, clothing, shelter and education. Starting with Pigou the basic needs approach is a utilitarian "because and only because fulfilment" of basic needs "contributes to utility" (Sen, A 1985). Sen, however, disagrees with the utilitarian approach. He argues that "value of living standards lies in the living" and better health is better living. Health is important because it is better living and not because it is an instrument for better living or has a utility.

Better health can have interpersonal benefits. There are many externalities of morbidity. Continuous illness can stifle the options for a family. In the instrumental sense, good health has an economic rationale. It leads to reduced medical cost of the government at macro level and house hold at micro level. The more the public sector expenditure on preventive health, less the household sector expenditure on curative health. Ill health may lead to loss of income for poor families subsisting on daily income. Improvement in health leads to gains in worker's productivity. A healthy worker increases the house hold income as well as increases GNP and GDP.

We can say that poor health reduces GDP per capita by reducing both labour productivity and the relative size of labour force. In other words, better health raises per capita income through various channels. Better health status of the population also leads to reduced mortality and higher life expectancy as well as decline in infant and child mortality. With increase in chances of child survival, fertility rates tend to decline, which leads to lowering of population growth rates. Thus better health leads to demographic transition.

The last 150 years has witnessed a global transformation in human health that has led to people living longer, healthier and more productive lives. (Bloom, D & et.al.,2004). In most parts of the world, people are healthier and living longer, thanks to improved health services and living conditions and more widespread use of immunization, antibiotics and better contraceptives.

In developed countries, the health status of people has improved with industrialization and economic growth. It is argued that per capita income is the best indicator of quality of life and hence of the health status of population (Mark, McGillivry, 1991). But this relationship has not been one to one. Some countries have achieved a relatively high health status at low level of incomes while others have not achieved higher health status inspite of high income. For instance, if we look at the data of Crude Birth Rate (CBR) for USA and UK it was 13.2 and 12.2 respectively and the Crude Death Rate (CDR) for these nations are 8.4 and 8.9 respectively ; as against this for India CBR and CDR is 20.4 and 7.9 respectively for the year 2013 (WHO, 2013). Same kind of trends can be seen for Infant Mortality Rate (IMR) and Maternal Mortality Ratio (MMR) too. However, it should be noted that in developing countries, urban areas tend to have better health facilities than rural areas resulting in better health status in urban than rural areas (Murthy, M., et.al,1995).

However, health indicators in India (viz., CBR, CDR, IMR, NGR, etc.) have seen substantial improvement in recent decades. But the quality and affordability of health care services continue to elude the poor (Acharya, A & Ranson, K,2005). Before we analyse the data let us acquaint with some basic terminologies of the health indicators.

III. BASIC TERMINOLOGIES

To measure the health status of any region there are many health indicators with which we can judge the status of health viz., Crude Birth Rate (CBR), Crude Death Rate (CDR), Natural Growth Rate (NGR), Infant Mortality Rate

(IMR), Maternal Mortality Rate (MMR), Life Expectancy at Birth (LEB), Total Fertility Rate (TFR), General Fertility Rate (GFR), Gross Reproductive Rate (GRR), Pre-Natal Mortality Rate, Post-Natal Mortality Rate, Still Birth etc. However, in this paper the author includes some selected ones like CBR, CDR, NGR, IMR, and MMR to precise the exercise. So let us understand the notion of all these indicators.

(i) Crude Birth Rate (CBR):-

The Crude Birth Rate (CBR) is the annual number of live births per thousand populations and is a ratio. In this the numerator is the number of live births registered during the year and the denominator is the midyear population for the same period. To express it in a form of formula we can represent it as below-

Crude Birth Rate = No of Birth registered during the year / Mid-year Population * 1000

(ii) Crude Death Rate (CDR):-

Crude death rate is the mortality expressed as a proportion of the population. The crude death rate is defined as the ratio of the number of deaths during the year to the midyear population in that year; the value is expressed per thousand populations.

Crude Death Rate = No. of deaths registered during the year / Mid- year Population * 1000

(iii) Natural Growth Rate (NGR):-

Natural growth rate of population can be defined as the difference between Crude Birth Rate and Crude Death Rate.

(iv) Infant Mortality Rates (IMR):-

The Infant Mortality Rate (IMR) is defined as the ratio of the number of deaths of children under one year of age to the number of live births in the reference year; the value is expressed per thousand live births.

Infant Mortality Rate = No. of infant deaths registered during the year / No. of live births registered during the year * 1000

(iv) Maternal Mortality Ratio (MMR):-

Maternal health plays a very important role in national building. Maternal health refers to the health of women during pregnancy, childbirth and the postpartum period. The equity in access to health services can be assessed by the achievement of the economy in maternal death. Maternal mortality rate can be defined as the number of deaths registered of mothers during the time of delivering baby per one lakh live births. In the world, every day in 2015, about 830 women died due to complications of pregnancy and child birth. The number of maternal deaths decreased by 43 percent between 1990 and 2015. Globally, the maternal mortality ratio (maternal deaths per 100 000 live births) fell by nearly 44 percent over the past 25 years (WHO, 2013).

(V) Life Expectancy at birth (LEB):-

Life expectancy of birth is nothing but the average number of years a person can live.

IV. METHODOLOGY

This is basically an exploratory research. The present paper attempts to compare the levels of health indicators for India with Gujarat state and Surat city particularly CBR, CDR, NGR, IMR and MMR. This paper is mainly based on secondary data source. The data were mainly collected from various reports published by the Government of India, like Census of India, Sample Registration System (S.R.S.), Ministry of Health & Family Welfare, Socio Economic Review- Gujarat State, Annual Diaries of Surat Municipal Corporation and the official link of Surat Municipal Corporation.

V. THE HEALTH SCENARIO

Demographic transition is a model that describes population change over time. There is several exposition of demographic transition theory. The theory mainly describes and analyses the transition from a stable population with a high mortality and high fertility to a stable population with low mortality and low fertility. The stages of demographic transition have, however, been differently analysed by different demographers. Here it is worth noting that India is at present in the third stage of demographic transition. However, the objectives and goals framed by the National Population Policy -2000 are to be achieved or not is a big question? Let us try to know that what is the position of India with respect to its one of the most developed state Gujarat and the fastest growing city of Gujarat and India called Surat with some important health indicators like Crude Birth Rate (CBR), Crude Death Rate (CDR), Natural Growth Rate (NGR), Infant Mortality Rate (IMR), Maternal Mortality Rate (MMR) and Life Expectancy at Birth (LEB).

If we look at the demographic aspects, then one can say that India is believed to have entered in the fifth phase of demographic transition which is usually characterized as rapid declining fertility (Census of India, 2011). While examining the data set of the said indicators of India and Gujarat it is worth to note that Gujarat's performance is better than all India aggregates with regard to all vital statistics. The Table – I below reveals the performance of some key health indicators of India and Gujarat state.

The CBR is 22.3 in Gujarat against 22.5 in India (2011), CDR is 6.9 against 7.3 in India, IMR is 48 against 50 in India

and CMR is 56 as against 59 in India. The Neo-Natal Mortality (NNM), Post Neo Natal Mortality (PNNM) and Peri Natal Mortality Rates are also lower in Gujarat than in India according to National Family Health Survey (NFHS-The estimated MMR in Gujarat was far lower (3.89) than in India (4.58) in 1992-93.

Table-I: Comparative Study of Health Status in Gujarat and India (2011)

Health Status Indicators	Gujarat	India
CBR(2011)*	22.3	22.5
CDR(2001)*	6.9	7.3
MMR(1992-93)*	3.89	4.58
IMR(2011)*	48	50
LEB (2016-20)Male*	67.2	65.8
LEB(2016-20)Female*	71.0	68.1
Neo-Natal Mortality Rate (2010)**	31	33
Post-Neo-Natal Mortality Rate(1998)**	21	27
Still Birth (2010)	7	7
Child Mortality Rate(0 – 5 years)(2010)**	56	59
General Fertility Rate*(2010)	82.1	83.9
Total Fertility Rate* (2010)	2.5	2.5
Gross Reproductive Rate(2010)*	1.2	1.2

Note: Data given by the Health Department of Government of Gujarat

Source: ** From SRS Bulletins; ** PRC and IIPS (1994)*

SRS bulletin January 2011 and Ministry of Health & Family Welfare

Moreover, while examining the data of Gujarat State as per SRS Bulletin, Crude Birth Rate decreased to 21.80 for the year 2010 as against 25.00 for the year 2001 and Death Rate also decreased to 6.70 for the year 2010 as against 7.80 for the year 2001. So far as Infant Mortality Rate (IMR) and Maternal Mortality Ratio (MMR) is concerned both has been dropped down. IMR was 44 for the year 2010 as against 60 for the year 2001 and MMR for the year 2007-09 is significantly lower at 148 as against 202 for the year 1999-01. Life Expectancy at Birth for male and female worked out to 70.70 years and 73.7 years for the period 2016-2020 respectively as against 62.70 years and 64.80 years for the period 2000-2004. However, it should be noted that many research studies prove that social sector indicators of Gujarat are not strong and they need to be further improved, health in particular.

If we talk about Surat city in all these contexts then the performance of the city seems to be better than Gujarat State especially in terms of CBR, CDR, IMR and MMR (See Table II below)

Table – II: Vital Health Statistics of Surat City (1981-2013)

Year	CBR	CDR	IMR	MMR
1981	30.25	8.58	49.97	1.33
1991	29.95	5.31	23.8	0.81
2001	19.04	4.12	20.97	0.25
2011	15.37	4.19	15.78	0.35
2013	15.08	4.02	16.74	0.33

Source: *Health Department, Surat Municipal Corporation.*

From the above table it can be particularly seen for Surat that both birth rate and the death rate have come down in the recent years especially after Plague in 1994. While, the birth rate has stabilized at 15 births per thousand population, the death rate is hovering around 4 deaths per thousand population. Moreover, it should be noted that inspite of a continuous reduction in birth and death rate over a period of time, the population of Surat city keep on increasing from 2,23,182 in 1951 to 44,66826 in 2011. The main cause for this dramatic increase in the demographic structure of Surat city is the huge influx of migrants to city who came in search of employment.

The same kind of trend is visualised for IMR and MMR too for Surat. In 1981 the IMR and MMR for Surat was 49.97 and 1.33 respectively which has been dwindled to 16.74 and 0.33 respectively in 2013. The birth rate, death rate, infant mortality and maternal mortality rates are less than the State averages as well as the averages of urban areas of Gujarat. The table III gives us an overview of some main demographic variables of India, Gujarat and Surat city.

Table –III: Vital Statistics of India, Gujarat & Surat (1991-2011)

Indicators	India				Gujarat				Surat			
	1981	1991	2001	2011	1981	1991	2001	2011	1981	1991	2001	2011
CBR	33.9	29.5	25.7	21.8	35.8	27.5	24.9	20.8 (2013)	30.25	29.95	19.04	15.37
CDR	12.5	9.8	8.7	7.1	12.2	8.5	7.8	6.5 (2013)	8.58	5.31	4.19	4.12
NGR	21.4	19.7	17	14.7	23.6	19	17.1	14.3	21.67	24.64	14.85	11.25
IMR	110	80	68	N.A.	113	69	60	36 (2013)	49.97	23.8	20.97	15.78
MMR	N.A.	N.A.	540 (2005)	N.A.	N.A.	389	202	112	1.33	0.81	0.25	0.35
LEB	50.4	59.4	62	65	N.A.	63.4	65.1	68.2 (2013)	N.A.	N.A.	N.A.	65

Source: *Compiled From Various Reports of Census, SRS & official link of SMC.*

From the above table we can infer that the major vital parameters for Surat are better as compared to the national and state averages.

VI. KEY FINDINGS

The salient findings of the present study are summarized below-

1. The Crude Birth Rate (CBR) at the National level during 2010 stands at 22.5 exhibiting a decline of 0.4 points over 2009. The maximum CBR has been reported in respect of Uttar Pradesh (28.3) and the minimum in respect of Kerala (14.8). The CBR for Gujarat remained at 20.8 for 2013 and for Surat it is 15.37 in 2011.
2. The Crude Death Rate (CDR) for the country has marginally declined to 7.2 in 2010 from 7.3 in 2009. The maximum CDR has been reported for Orissa (8.6) and the minimum for Delhi (4.2). Gujarat's CDR for the year 2013 was 6.5 and for Surat it remained at 4.12 in 2011.
3. The Infant Mortality Rate (IMR) has also registered 3 points decline to 47 in 2010 from 50 in 2009 at the National level. The maximum IMR has been observed in Madhya Pradesh (62) and the minimum in Kerala (13). The IMR stood at 36 (2013) and 15.78 (2011) for Gujarat and Surat respectively.
4. IMR for the country has come down to 47 in 2010 from 58 in 2005, a decline of 11 points over last 5 years and an annual average decline of about 2.2 points. The corresponding decline in rural IMR has been to the tune of 13 points (64 in 2005 to 51 in 2010) against a decline of 9 points in urban IMR (40 in 2005 to 31 in 2010). There has been a decline of 10 points in male IMR (56 in 2005 to 46 in 2010) and 12 points in female IMR (61 in 2005 to 49 in 2010) for the country over the period under reference.
5. The MMR for India was 540 in 2005, for Gujarat it was 112 for 2011 and 0.35 for Surat in the year 2011. Particularly for Surat city the MMR had reduced significantly from 1.33 in 1981 to 0.35 in 2011. This figure is far lower than the national and state level figures.
6. The life expectancy at birth for India was 50 years in 1981 which has been increased to 65 years in 2011; so far as Gujarat state and Surat city is concerned the expectancy at birth remained at 68.2 years (2011) and 65 years respectively.

VII. THE WAY FORWARD

To improve the performance of these vital statistics the Government of India has launched various programmes and schemes like National Rural Health Mission-NRHM (2005), Janani Suraksha Yojana (JSY), opening up of new Public Health Centres (PHCs), Urban Health Centres (UHCs), Community Health Centres (CHCs) etc. As a result of the efforts made by the government for all these the performance of these health parameters improved over a period of time. However, when we compare these health indicators with developed nations our performance is not satisfactory. For instance, the CBR for U.S.A., U.K., Japan and Australia stood at 12.4, 12.1, 8.1 and 13.3 respectively as against 21.4 for India in 2013. The CDR for the said developed nations for the same year was 8.2, 9.0, 10.0 and 6.4 respectively and for India it was 7.0. Visualizing the data on IMR is more horrible. IMR for these developed nations in order is 6.0, 4.1, 2.1, and 7.5 respectively as against 40 for India in 2013. These empirical facts require lot of attention for the country like India and its States. A proper planning and a rigorous implementation at all level have to be made to improve the health situation so as to compete with the developed nations.

VIII. CONCLUSION

The demographic scenario in the country has been undergoing a change since the inception of SRS; however, the profile and rate of change is not uniform across all the States/UTs and specific regions. Here, in this paper the author tried to examine the comparison of various health indicators for India, Gujarat state and in specific Surat city. The demographic and health status indicators have shown significant improvements over a period of time at all levels. However, the performance of all these indicators for Surat city is far better as compared to national and state level data.

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