



ISSN: 0976-3031

Available Online at <http://www.recentscientific.com>

International Journal of Recent Scientific Research
Vol. 6, Issue, 5, pp.3796-3801, May, 2015

**International Journal
of Recent Scientific
Research**

RESEARCH ARTICLE

FLUCTUATION OF SEX RATIO IN INDIA WITH SPECIAL REFERENCE TO WEST BENGAL

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ARTICLE INFO

Article History:

Received 14th, April, 2015
Received in revised form 23th,
April, 2015
Accepted 13th, May, 2015
Published online 28th,
May, 2015

ABSTRACT

The study of sex ratio ventilates the demographic scenario of any nation. Its calculation is of prime importance for understanding the population structure and its peculiarities within any territorial area. Sex ratio is defined as the number of females per 1,000 male population. According to Census of India, the general sex ratio in India in 2001 was 933 which have experienced an upward trend up to 940 in 2011. On the contrary, child sex ratio in the country has experienced a declining trend from 927 in 2001 to 919 in 2011. The State of West Bengal has experienced a positive increase in general sex ratio from 934 (2001) to 950 (2011) while the child sex ratio has declined from 960 (2001) to 955 (2011). This paper is an attempt to analyze the causes of such imbalances as well as to investigate the nature of regional disparities and impact of such disequilibrium upon society.

Key words:

human development, female
literacy, mean age of marriage,
female foeticide, female
infanticide

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INTRODUCTION

The measurement of Sex Ratio is one of the vital demographic attributes for any country. It is defined as the ratio of females per 1,000 male population. The sex ratio at birth may be skewed by factors such as the age of mother, sex-selective abortion which is commonly known as female foeticide as well as incidences of female infanticide. Despite being one of the fastest growing economies in the world, India is still grappled with the declining Child Sex Ratio. Sex ratio which has always been a matter of concern for India and a United Nations report on the same has raised more questions on the dwindling number of girls in the country. In its report, entitled 'Sex Ratios and Gender Biased Sex Selection: History, Debates and Future Directions', the United Nations has warned its member countries stating that the steadily declining child sex ratio in India has reached emergency proportions and urgent action must be taken to alleviate this crisis. The global sex ratio at birth was estimated to be 936 girls / 1,000 boys in 2011 while the child sex ratio was 931. In India, the general sex ratio was 933 females / 1,000 males in 2001 which has substantially improved to 940 in 2011. The country has recorded negative child sex ratio which has declined from 927 girls in the age group 0-6 years / 1,000 boys in the same age group in 2001 which came down to 919 girls in the same age group in 2011.

In India, 132,000 girls in the age group of one to five years die because their parents do not provide them with equal medical care and attention that is given to a boy [Kristof, 2009]. The major Indian States can be divided on the basis of change in both general as well as child sex ratio. In case of West Bengal the general sex ratio in 2001 was 934 which have exhibited an upward trend in 2011. On the contrary the child sex ratio has declined in the State from 959 in 2001 to 955 in 2011. The State with highest sex ratio in India is Kerala while Haryana has recorded drastic fall and is the State with lowest sex ratio in India in 2011. Puducherry is the Union Territory with highest sex ratio while Daman and Diu has recorded lowest sex ratio among Union Territories in 2011. It has been observed that education in general and literacy in particular has an intrinsic relation with social, economic and cultural growth of any nation. The literacy rate in India was as low as 12 per cent way back in 1947 which has eventually improved to 74.04 per cent in 2011.

Objectives of the Study

The study has been initiated to fulfil the following objectives

- To identify the major Indian States with fluctuations in general as well as child sex ratio

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- To trace the reasons behind such fluctuations
- To understand the implications of changing sex composition in Indian society
- To study the dimensions of changing sex ratio among the districts of West Bengal

Area Under Study

The State of West Bengal is comprised of 19 districts inclusive of Kolkata city though one more district Alipurduar has been added within the State’s territorial jurisdiction in June, 2014. These districts are categorized under three administrative divisions namely Jalpaiguri, Barddhaman and Presidency.

Among the 20 districts, six districts namely Koch Bihar, Jalpaiguri, Alipurduar, Darjiling, Maldah, Uttar Dinajpur and Dakshin Dinajpur are included under Jalpaiguri administrative division while seven districts namely Barddhaman, Birbhum, Bankura, Puruliya, Hugli, Purba Medinipur and Paschim Medinipur have been incorporated under Barddhaman administrative division. Lastly, six districts viz. Murshidabad, Nadia, Kolkata, Haora, North 24 Parganas and South 24 Parganas are included under Presidency administrative division.

MATERIALS AND METHODS

The study has been accomplished mainly through secondary data which have been collected from Census records published by the Government of India since independence to till date, Sample Registration System Bulletin published by the Registrar General of India and District Statistical Handbooks published by the Bureau of Applied Economics and Statistics, Government of West Bengal. Apart from these a number of articles published in various National and International journals have also been consulted for the purpose.

Necessary primary data have been generated through questionnaire based survey meant for different target groups following stratified random method of sampling with a sample size of 1,200 households representing households of slums and shanties on one hand while houses and apartments categorized under non-slum communities on the other. Computation of data is followed by cartographic representation and analytical notes.

RESULTS AND DISCUSSION

Sex Ratio and its Major Determinants in Indian States: According to Registrar General of India in 2000, 1.98 crore children were born while in 2010 this figure rose to 2.1 crore. However, the growth in the number of male children born was higher by 5.44 per cent when compared with the growth in the number of girl children which was recorded to be 4.69 per cent.

The sex ratio at birth as a result was slightly worse in 2011 than what it was in 2001. The dominant order of birth was third and higher order in 2001 while there was a preference for two children observed among couples in 2011.

Table1 Decadal Variation of Rural-Urban Literacy Rate in India, 1951-2011

Years	Literacy Rate (in percentage)	
	Rural	Urban
1951	12.10	34.59
1961	22.50	54.40
1971	27.90	60.20
1981	36.00	67.20
1991	44.70	73.10
2001	59.40	80.30
2011	58.74	79.92

Source: Census of India, 1961-2011

As opined by the demographers health and education are invariably correlated with one another. With the improvement of education the condition of health especially that of maternal health is bound to improve. The condition of literacy is, however, highly skewed in the country with better education facilities observed in urban areas than the rural counterparts [Table.1].

The southern States of India have made progress in the field of human development especially in health and education. Kerala is one of the major Indian States which holds a place of dominance in providing sound health care infrastructure to its population. The State has made remarkable achievements in the field of education with highest female literacy rate in comparison to any other State in the country. Kerala has successfully maintained its leading position in human development indices over the last 15 years. The general sex ratio in the State was 1,058 females / 1,000 males in 2001 which has further improved to 1,084 in 2011. The child sex ratio on the contrary has recorded a negligible decline from 965 girls in the age group 0-6 years / 1,000 boys in 2001 to 964 in 2011. However, the child sex ratio in the State was 972 in 1961 which had eventually declined to 958 in 1991 but had again improved to 965 in 2001 [Fig.1].

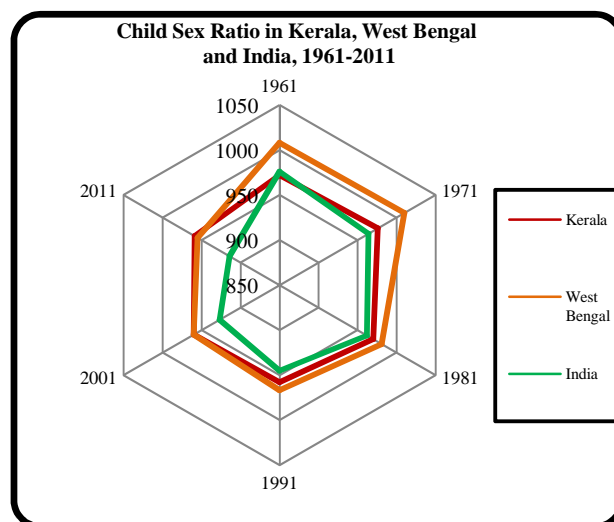


Fig.1 which shows Child Sex Ratio in Kerala, West Bengal and India, the index in the diagram should be made entirely visible. Source: Government of India

Health and education as two components of social infrastructure are invariably linked. This is true in case of Kerala also. The performance of the State has been outstanding in promoting female literacy. Kerala has sustained its leading position with a female literacy rate of 91.98 per cent in 2011

which was 87.86 per cent in 2001. Another southern State that has made sound progress in the field of human development is undoubtedly Andhra Pradesh. The health care infrastructure has been praiseworthy in this State over time. In 2001 the State had general sex ratio of 978 which has improved to 993 in 2011.

The child sex ratio has amazingly increased from 896 in 2001 to 939 in 2011. The State has managed to improve its female literacy rate as well [Table.2]. The State of Karnataka has recorded an upward general sex ratio with a declining child sex ratio. In 2001 the State has registered general sex ratio of 964 which has somewhat increased to 973 in 2011. The child sex ratio has, however, declined from 973 in 2001 to 948 in 2011.

Among the northern States of India, Himachal Pradesh has exhibited marginally increasing general sex ratio from 970 in 2001 to 972 in 2011. The picture has been somewhat gloomy in case of child sex ratio which has experienced a drastic fall from 957 in 2001 to 909 in 2011.

Table.2Female Literacy Rate in Selected States of India

States	Female Literacy Rate (in percentage)	
	2001	2011
Kerala	87.86	91.98
West Bengal	60.22	66.57
Karnataka	57.45	66.01
Gujarat	58.60	63.31
Odisha	50.97	62.46
Andhra Pradesh	51.17	58.68
Madhya Pradesh	50.28	54.49
Uttar Pradesh	42.98	51.36
Rajasthan	44.34	47.76
Bihar	33.57	46.40

Source: Census of India, 2001 and 2011

One of the most populous States of India is Uttar Pradesh which has recorded an increasing general sex ratio from 898 in 2001 to 912 in 2011. However, the State has registered an abrupt fall in child sex ratio from 942 in 2001 to 902 in 2011. The female population in the State does not hold a sound status in the society. It is males dominated society and majority of the women in the rural areas are married before attaining the legal age of 18 years. The State has experienced highest total fertility rate both for rural and urban areas among major Indian States during the period 2005-10. There is a preference for male children in every family and the women are forced to conceive until a male child is born. Uttar Pradesh has recorded 40 foeticide incidences during 2005-10 which has been quite high among other major Indian States [Government of India, 2011]. The incidences of infanticide have been horrifying in the State with 30.10 per cent of the total incidences occurring here during 2005-10. The female literacy rate in this State was miserable in 2001 which has somewhat crossed 50 per cent in 2011. The concern of the demographers has been the north-western States of India especially Haryana and Punjab. Haryana has registered lowest child sex ratio in the country with maximum decline observed in the figure from 964 in 2001 to 834 in 2011. The general sex ratio has improved marginally from 861 in 2001 to 879 in 2011. Similar miserable condition prevails for the neighbouring State of Punjab where the child sex ratio has registered an abrupt decline from 961 in 2001 to 846 in 2011. The figure for general sex ratio has, however, improved appreciably. These two States mainly follow an agrarian economy with conservative and traditional type of society. The male children are still considered to be asset while

the female children are liabilities. During the period 2005-10 the foeticide incidences registered have been abnormally high in Punjab.

Some of the eastern States in the country have been relatively backward in the field of health and education especially when education for the girls is concerned. The demographic scenario of Bihar has suggested that the State has experienced a decline in general sex ratio from 921 in 2001 to 918 in 2011 while reverse is the case for child sex ratio which has improved from 908 in 2001 to 935 in 2011. The State has registered about 11 infanticide incidences during the period 2005-10 [Government of India, 2010]. Due to critical situation of law and order in the State majority of the foeticide and infanticide incidences especially in the rural areas are not registered. The women are granted low socio-economic status in the society with 52.30 per cent of the girls married below the legal age of 18 years. The status of female literacy is shocking in the State with 46.40 per cent of the female found to be literate [Government of India, 2011]. The State of Odisha is no exception from majority of the Indian States which has recorded an upward general sex ratio of 979 in 2011 which was 972 in 2001 while the child sex ratio has declined from 979 in 2001 to 941 in 2011. In case of West Bengal the scenario remains unaltered with general sex ratio increasing from 934 in 2001 to 950 in 2011 while child sex ratio is declining marginally from 957 in 2001 to 956 in 2011. The female literacy rate has however improved in the State with the society opening up more for the female population. There have been rural-urban variations in child sex ratio observed in the all States of India [Fig.2]. Even disparities are observed between the States and union territories. The tribal dominated States like the seven sisters of north-eastern India have exhibited a much sound demographic structure than other so called progressive States. The child sex ratio has always been in a fluctuating condition in India which has reflected the underlying socio-economic and cultural pattern of the society especially its attitude towards the girl child [Fig.3]. In case of a district-wise analysis of the Indian States and Union Territories, ‘Lahul and Spiti district’ of Himachal Pradesh has the highest child sex ratio of 1,013 in 2011 followed by ‘Tawang district’ of Arunachal Pradesh while in 2001 ‘South Sikkim’ had the highest child sex ratio of 1,040 followed by ‘Bastar district’ of Chhattisgarh. Dakshin Dantewada and Bastar are two districts in Chhattisgarh which have sustained their position in maintaining high child sex ratio despite socio-economic backwardness of the State.

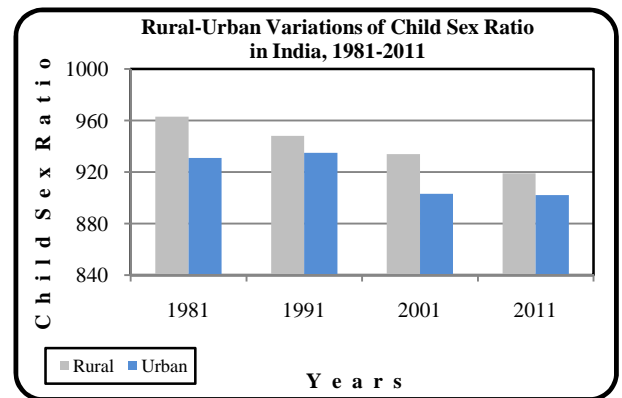


Fig.2 Rural-Urban Variations of Child Sex Ratio in India, 1981-2011
Source: Government of India

In Bihar, Nawada district has registered a child sex ratio of 985 despite high incidences of infanticide in the State. Among the bottom districts with low child sex ratio, Jhajjar district of Haryana has recorded lowest child sex ratio of 774 in 2011 followed by Mahendragarh in the same State where the figure is 778. In 2001, Sonipat in Haryana had recorded lowest child sex ratio of 788 followed by Rupnagar (787) in Punjab. Apart from Sonipat, Ambala and Rohtak are other districts of Haryana with extremely low child sex ratio. The Pithoragarh district of Uttarakhand has registered the lowest child sex ratio in the State with the figure been 812 while the Bid district of Maharashtra has recorded the lowest child sex ratio of 801 in the State in 2011.

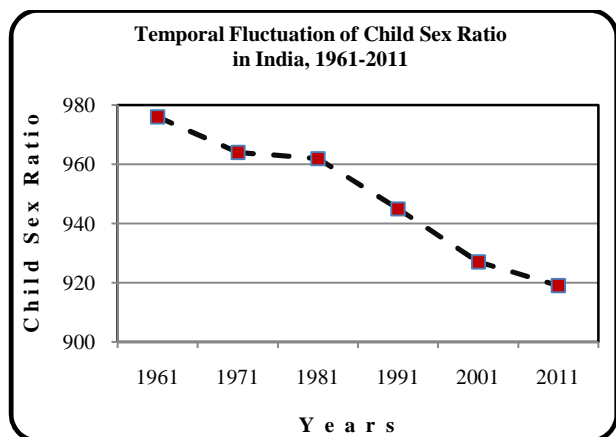


Fig.3 Temporal Fluctuation of Child Sex Ratio in India, 1961-2011

Source: Government of India

The general sex ratio among slum population of India has been recorded to be 922 in 2011 while the child sex ratio was 928. The female literacy rate among the slum population was 71.2 per cent in 2011 while the female work participation rate among such population in 2011 was 17.1 per cent. The highest general sex ratio has been recorded among slum population of Kerala in 2011 where the figure was 1,074 while lowest general sex ratio of 832 prevailed in the slums of Delhi. In case of child sex ratio highest ratio was found to be 1,020 among slum population of Arunachal Pradesh while lowest ratio of 850 prevailed in Haryana in 2011.

An Inter-district Study of Sex Ratio in West Bengal: The State of West Bengal has always played a significant role in the country's socio-economic and political scenario since the colonial period. The State is considered as the dominant one among the eastern States of India in the field of human development as well as trade and commerce. There were 19 districts in the State with one more district Alipurduar added in June, 2014. The level of human development in the State is highly concentrated in and around the city of Kolkata which was the capital of the country during the period 1772-1911 under British *Raj*. However, the level of human development varies among the districts as well as within the districts. The sex ratio in the State is linked with the status of female literacy, age of marriage, incidences of female foeticide and infanticide as well as female work participation rate. In 1901 the general sex ratio in the State was 945, which was well below the national figure of 972. The gap widened in 1951 when the State general sex ratio was 865 and the national figure was 946. The State improved appreciably in 1991 when the general sex ratio

increased considerably to 917 when the country's general sex ratio was 927. However, the State surpassed the national figure of 943 in 2011 when the State's general sex ratio was improved to 950.

In case of district-wise analysis of West Bengal, Kolkata Municipal Corporation (KMC) Area has recorded lowest sex ratio in 1961 when the city's sex ratio was as low as 630 mainly because of male migration in a growing city offering job opportunities while highest sex ratio prevailed in Murshidabad where the figure was 974. In consecutive years KMC had always been the district with lowest general sex ratio up to 2011 when the city's figure has improved to 908 while the State figure is 950. However, the general sex ratio in the city has somewhat improved in 2011 [Fig.4].

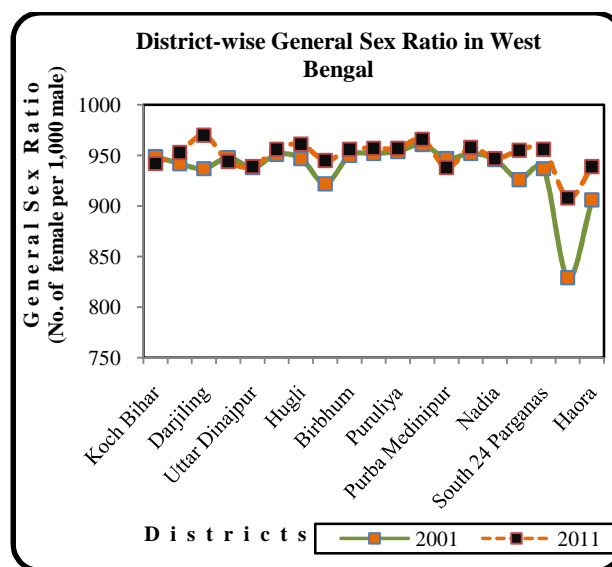


Fig.4 has been narrowed too much. All the districts are not visible. Make the figure a bit broader so that every district is visible in the graph.

Source: Government of India

Kolkata and Hugli are parts of Hugli industrial belt and Kolkata conurbation. Barddhaman district is also well known for Asansol-Durgapur mining-industrial belt. These hubs of economic activities had strong pull factors for male fraction of the society who brought in female members of their family at a later phase of their lives after solving the problem of space crisis in the urban landscape and crossing the hurdle of job security. This inflow of migrants in Kolkata has somewhat affected the overall sex ratio in the city [Table.3].

Table.3 Decadal Variation of General Sex Ratio in Kolkata and West Bengal, 1951-2011

Years	General Sex Ratio (Number of female / 1,000 male)	
	Kolkata	West Bengal
1951	593	865
1961	630	878
1971	662	891
1981	741	911
1991	799	917
2001	829	934
2011	908	950

Source: Census of India, 1961-2011

In 1971 highest general sex ratio was recorded in Birbhum district (968). It is interesting to note that in every year the district with highest sex ratio has changed while that of the

lowest sex ratio has remained unaltered. In case of administrative divisions the position of Presidency administrative division has always been leading while Barddhaman administrative division has lagged behind. Among the districts under Presidency administrative division, Murshidabad and Nadia has recorded a favourable general sex ratio while Hugli and Barddhaman are the districts which had recorded low sex ratio among the districts under Barddhaman administrative division. Koch Bihar, Maldah and Uttar Dinajpur are the districts under Jalpaiguri administrative division which have recorded declining general sex ratio in 2011 in comparison to that of 2001 [Fig.5].

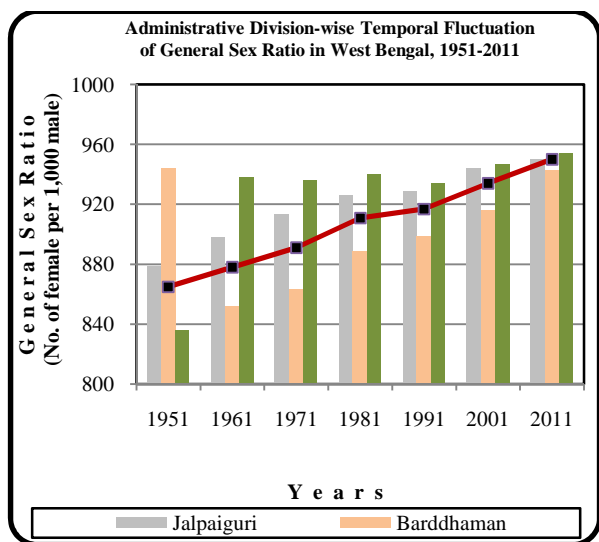


Fig.5 shows the position of 3 administrative divisions of West Bengal. Due to excessive narrowing of the index only 2 administrative divisions are visible. Make the index a bit bigger so that all 3 administrative divisions are visible for proper justification of the figure.
Source: Government of India

The sex ratio has been quite high among scheduled tribe population residing either in the rural areas or in the urban areas. This is mainly due to the equal status granted to a woman in the tribal society. The incidences of foeticide as well as infanticide are low in a tribal society when compared with the progressive society of modern India. The sex ratio at birth is also high among tribal families. The sex ratio has been lowest in case of general caste population both in the rural as well as urban areas during the period 2001-11 [Table.4]. There has been declining child sex ratio observed in a number of districts within the State. The drastic fall in child sex ratio has been recorded in all the districts under Jalpaiguri administrative division especially in Koch Bihar and Maldah districts. Majority of the districts under Barddhaman administrative division has also registered declining child sex ratio with highest decrease observed in Puruliya district where the figure in 2001 was 964 which has dropped to 953 in 2011.

Table.4 Settlement Category-wise General Sex Ratio in West Bengal, 2001-2011

Settlement Type	General Sex Ratio (No. of female / 1,000 male population)					
	2001			2011		
	Gen	SC	ST	Gen	SC	ST
Rural	945	953	984	948	951	1,000
Urban	887	928	950	942	951	991

Source: Census of India, 2001-11

Kolkata under Presidency administrative division has recorded a positive rise in child sex ratio from 927 in 2001 to 932 in 2011. However, within the city borough-wise variation has been observed.

Among the districts under Presidency administrative division only Haora and Kolkata districts have recorded a positive rise in child sex ratio.

Table.5 Decadal Variations in Child Sex Ratio in Districts of West Bengal

Districts	Child Sex Ratio (No. of females in the 0-6 age group/ 1,000 males in the same age group)	
	2001	2011
	Koch Bihar	964
Jalpaiguri	969	955
Darjiling	962	952
Maldah	964	949
Uttar Dinajpur	965	953
Dakshin Dinajpur	966	956
Murshidabad	972	968
Nadia	972	959
North 24 Parganas	958	955
South 24 Parganas	964	962
KMC Area	927	932
Haora	956	961
Hugli	951	952
Barddhaman	956	951
Birbhum	964	959
Bankura	953	948
Puruliya	964	953
Paschim Medinipur	951	962
Purba Medinipur	951	945
West Bengal	960	955

Source: Computed from the data available from Census of India

An abrupt fall in child sex ratio could be seen in districts like Nadia, North and South 24 Parganas respectively [Table.5]. There is still an urge for male child seen within the urban society of Kolkata. Even the families residing in the houses and apartments within the city have preference for male child in comparison to a female one. Though the girl child is sent to school and has access to health care facilities, she is often neglected by her parents and grand parents during her years of growth which tends to affect her psychological set up. The problem is even more acute for families residing in squatter settlements in the city and its fringe areas.

Findings of The Study

The present study has revealed some shocking facts of Indian demographic structure. Despite progress in the country's civilization reflected through modernization of society, the country is still experiencing a male dominated society where the women are considered as a weaker sex. In the rural areas of Uttar Pradesh, Rajasthan, Bihar, Jharkhand and Chhattisgarh, a girl is married even before attaining the legal age of 18 years. She is denied the access to education and healthcare facilities even during her reproductive period. The women in these areas are compelled to conceive repeatedly for the desire of a son stemmed out of her in-laws which adversely affects her health as well as that of the neonate. Protein Energy Malnutrition (PEM) and iron deficiency anaemia are the common causes of nutritional dwarfism among children where the frequency of child bearing is high among mothers. In case of gross

nutritional deficit, the weight gain is slow and the muscles are wasted (Ghai *et al.*, 2005). PEM and growth retardation are probably the most widespread health and nutritional problems of the developing countries including India (Mehta, 2000).

Inheritance of the property and extension of the family to next generation both are possible through a male child. A girl child in near future is transferable and that too with high cost involvement through payment of dowry. Hence she is considered to be a liability. Sooner the transfer of liability better would be the pecuniary condition of the family. Such a psychosis leads to early marriage of the girls and the gender bias continues for generations in cyclic order. She is not treated at par with her male siblings. The backward States in the country suffer from heinous crimes like female foeticide, sex-selective abortion etc which tends to adversely affect the sex ratio at birth. Another grave crime, which often strikes media as female infanticide, is still prevalent among lower strata of society in urban areas and in Indian villages. Abandoning, selling or trafficking of a girl child is a common practise in Indian society today. A woman in Indian household is frequently subjected to marital rape and other acts of barbarism which she has to tolerate owing to cultural values prevalent in Indian society even in the 21st century. The sex ratio whether general or child has some determinants which include female literacy, mean age of marriage for girls, level of awareness as well as female work participation rate. Majority of the women in households are not aware about their rights and power which have already been even recognized by the Constitution of India. The 73rd amendment to the Constitution passed in 1993 has brought about one million women at the grassroots into the political system. Women now hold 11 per cent of the membership in Indian Parliament and 10 per cent of ministerial level positions.

It has been observed that States with low female literacy rate like Uttar Pradesh, Bihar, Madhya Pradesh and Rajasthan have low general and child sex ratio. On the contrary, Kerala with 91.98 per cent female literacy rate has far better sex ratio through social engineering. The State has adopted a welfare approach and has granted equal status to women. Kerala has successfully reduced the gender gap in literacy, enhanced female-male ratio as well as raised the age of marriage. The State enjoys the leading position in human development especially in the field of health and education. It is interesting to note, that low child sex ratio is prevalent even among educated urban population especially residing in slums and shanties. Psychosis of negligence towards a girl child is operational in urban educated society too as remnant of feudal value system.

In West Bengal, the general sex ratio has somewhat improved while the child sex ratio has declined. In majority of the districts child sex ratio has drastically declined. General as well as child sex ratio have been found to be favourable among tribal population in comparison to that of scheduled caste and general caste population. The mean age of marriage for the State has somewhat improved both for the rural and urban areas.

The female literacy rate has showed an upward trend while the female work participation rate also has been improved. In 2011, the female work participation rate among slum population in the State was 15 per cent while among non-slum population this figure is 15.5 per cent. The increase in the female work participation rate has a direct linkage with an improvement in female literacy rate of 76.7 per cent among slum population and 82.2 per cent among non-slum population.

CONCLUSION

The declining sex ratio is actually an undeclared emergency crisis which has its profound and frightening implications upon society and future of mankind. It is shocking that killing of the girl child both before and after birth is still practised in the country despite legal prohibitions and incentive-based schemes provided by the State and Union Government. Rural society in the country is still entangled in class and caste divide with a deliberate intention that a girl child should not be born. This artificial alteration of demographic structure has implications not only on gender justice but also on the pattern of social violence and human development. Gender equality is still eluding in India. Restoration of the gender balance is not only the sole duty of the Government but its responsibility is bestowed on Non-government Organizations also for championing the campaign for mass awareness. 'Beti bachao, beti padao' or 'Save and educate the girl child' has to be the motto for every Indian family now-a-days. Empowerment of women in the field of socio-economic and political arena should be the essence of modern Indian society and then only a balanced demographic structure within the country could be achieved.

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