The Dynamics of Population: Sex Ratio in South Bihar Plain (1901-2011)

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Abstract: The proportion of females to male, in other words number of female per thousand male, helps us in understanding the status of women or the prevailing equality between males and females at a particular time in our society. Sex ratio are among the most basic demographic characteristics and provide an understanding of the relative survival of both males and females. The sex ratio becomes favourable to women, when the number of females exceeds that of males, and is said to adverse, when the number of males exceeds to female. Sex ratio in Indian society normally remained adverse to women, as it has been rapidly declining decade after decade. There are many socio-economic factors which are intimately related with the inequality between the number of males and females, which affects the socio-economic and cultural characteristic of our society in different ways. In a state like Bihar, especially South Bihar plain, sex ratio becomes a key factor in understanding the development, because it has both demographic and social implications. The data regarding sex ratio helps in various types of planning in the study area and also helps us in the analysis of other demographic indicators like, fertility, mortality, migration and socio-economic structure of the study area. It has generally influenced the form and tempo of life in the state of Bihar and south Bihar plain. The decrease in number either men or women of adult age will reduce the marriage rate and will ultimately affect the crude birth rate, which will be resulted into many social evil. In this research paper, we will examine the district wise spatio-temporal variation in sex ratio as well as growth of male and female population in South Bihar plain and state of Bihar as a whole. Through this research paper we will also try to find out the reasons behind this unprecedented decline in sex ratio from 1931, onward in the districts of South Bihar plain. This research paper will also help in understanding the consequences due to the continuous decline of sex ratio in the study area. As we know the South Bihar plain has been formed by the sediments brought by several rivers, especially river Ganga, which helped to develop a fertile land. From time immemorial, it has been A tendency of human population, that they settled in those region, which are fertile and water sufficient. It is only because of this fact that agriculture has become main stay of economy in the region. Therefore study of the sex ratio will help in understanding the socio-economic and cultural aspect of the study area. It is a matter of grave concern that the sex ratio in the study area has been continuously declining and always remained adverse to women after 1931, but up to 1961, it remain in favour of women in the state as a whole.

Keywords: Bihar, South Bihar plain, Sex ratio, Growth of Male and Female Population, Variation in Sex Ratio 1901-2011, Sex Ratio in Bihar

1. Introduction

In India, especially in Hindi speaking state like Bihar, gender discrimination is a common problem due to cultural preferences. If one born as a girl in our society, she has to face the gender discrimination everywhere, right from her own home to other places. In our society females are confined to household’s works, like raising children and looking after their families, even, if they are well educated. This gender discrimination is only due to patriarchal nature of our society, which is reflected in the form of disparity between males and females at all levels. In the year 1955 Professor Money introduced the term gender and distinguished it from the concept of sex, because sex is a biological identity, whereas, gender refers to social identity, which means social value of male and female. In our society gender inequality is increasing day by day. In the year 1901, there were 238.40 million population, out of which 120.80 million were males and 117.36 million were females, which was 3.44 million lower than male population. In the year 1951, there were 185.52 million males and 165.36 million females. Therefore, the difference between males and females increased from 3.44 million in 1901 to 9.96 million in 1951, which further increased to 37.35 million in 2011. Therefore, we can say that the sex ratio has been gradually declining from 1901 till date. In the year 1901, there were 972 females per thousand males, which has now decreased to 943 females per thousand males in 2011. Bihar reflected the higher sex ratio in 1901, i.e., 1060 females per thousand males which has decreased to 917 females per thousand male sin 2011, almost same conditions are found in South Bihar plain, it was 1052 females per thousand males in 1901, which reached to 913 females per thousand males in 2011.

Sex ratio is one of the most important aspect of demographic studies; because it affects the socio-economic and cultural status of an area, sex ratio is basically a ratio between female and male population, which is generally defined as, number of females per thousand males. It is one of the basic demographic characteristics and useful in demographic analysis. It is a key factor in the development of any region, and helps in various types of planning, because it reflects the biological, social, economic and migration characteristics of the population. An imbalance between male and female will lead lower fertility and slower growth of population and this imbalance, originates from various social and demographic factors. An understanding of the sex ratio of population in terms of spatial variation, especially at district levels is of fundamental importance for a proper understanding of various demographic attributes of any region. Sex ratio is influenced by birth rate, death rate and migration, apart from these factors, sex ratio is also affected by natural calamities like famine, flood, earthquake and even due to war.

Sex ratio has been continuously declining and its consequences are already evident. The skewed sex ratio has led to more violence against women and human trafficking.
Because of this people do not want girls as they feel that it is difficult to keep them safe. Apart from this women who give birth to girl child face much more domestic violence.

Therefore, we can say that the problem of declining sex ratio is multifaceted and there is no single reason behind it.

2. Study Area

South Bihar plain is located in the eastern part of India, and is the southern part of Bihar state, and geographically it is the southern part of Middle Ganga plain. It is bounded by river Ganga and North Bihar plains to the north, the Bengal Basin to the east, Ayodhya (Oudh) plains to the west and Chhota Nagpur plateau to the south and is located between 24°46′48″ north to 25°30′21″ north latitude and 83°36′20″ east to 86°59′20″ east longitude. This region has been mentioned in the Hindu Epic Ramayana and Mahabharata. It extends over southern part of Bihar and covers an area of 46179 sq.km. It is narrower than north Bihar plain, and is triangular in shape and extends from Kaimur district in the west to Banka in the east. It is wider towards the west and center and gradually tapers towards the east. The elevation decreases from 500 feet in south to only 100 feet towards south, it means there is general slope from south to North. Ganga is the master stream; which flows west-east in the middle of Bihar state. It is joined by three large rivers viz., Gaghra, Gandak and the Son. South Bihar Plain has been formed due to deposition of sediments brought by river Ganga and other rivers. South Bihar plain has continental climate with three district seasons. As there is variation in the climate across the region, therefore, we can say that it is modified monsoon climate. It is primarily an agricultural area, due to its soil and abundant water resources, but small quantities of minerals are also available in this region. Stone quarries, rice mills and few sugar factories are the main industries in this region. Apart from this, a large number of handlooms and power looms are found especially in Gaya and Bhagalpur districts. Bihar is the third most populous state of India with a population of 38551925 persons. Sex ratio in the state of Bihar is 918 females per thousand male; which is little bit greater than the sex ratio of South Bihar plain, with a sex ratio of 913 female per thousand male.

3. Objective of the Study

This research paper has been designed to understand the decadal variation in sex ratio, at district level in south Bihar plain, as well as Bihar state, as a whole, we will also try to find out sex wise decadal population growth as well as trends of male and female population growth at district level. Apart from this there will be a comparative study of sex ratio in the districts of south Bihar plain, and will also analyse the decadal change in sex ratio. Through this research paper we will also try to find out the reasons behind this variation is sex ratio, and will try to understand the implications of declining sex ratio in South Bihar plain and state of Bihar as a whole.

4. Database and Methodology

The present research paper depicts the districtwise comparative analysis of decadal variation in sex ratio from 1901 to 2011. Therefore the present study has been primarily accomplished through secondary source of data in published form, especially from Census records published by Government of India as well as office of Director, Census of Bihar. District Census Handbook of different districts of south Bihar plain. Present study covers seventeen districts from South Bihar plain, therefore, for purposeful organization of collected data from different secondary sources, has been tabulated computed and analysed with the help of suitable statistical technique, to make the comparative analysis of sex ratio more accurate and relevant. Apart from this different cartographic methods, like bar graph, line graph and choropleth methods have been applied to represent the statistical data, obtained from different secondary sources.

District level variation in sex ratio must be studied temporally apart from spatial study. Therefore, it has been analysed in time perspective too. This research paper extends over a time period from 1901-2011, but the growth of population occurred at faster pace from 1951, therefore, the main thrust of discussion will be from 1951 to 2011, but a general overview of comparative analysis of sex ratio will be done from 1901 to 1951, too.

Trends of male and female population growth

According to table 1 there is a perceptible variation in growth rate of male and female population from 1901 to 2011. In the state of Bihar, from 1901 to 2011, the highest growth of male population occurred in the year 2001, with a percentage growth.

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<tr>
<th>Year</th>
<th>Male Growth</th>
<th>Female Growth</th>
<th>Sex Ratio</th>
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<td>1931</td>
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<td>1921</td>
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<td>1911</td>
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<td>1901</td>
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Table 1: District wise Decadal Variation in Sex Ratio and Growth of Male and Female Population

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Source: Census Reports. / Percentage Growth and Sex Ratio calculated by author

### Lakhisarai

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<th>Female</th>
<th>% Growth</th>
<th>Sex Ratio</th>
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<th>% Growth</th>
<th>Female</th>
<th>% Growth</th>
<th>Sex Ratio</th>
<th>Male</th>
<th>% Growth</th>
<th>Female</th>
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<td>1,380,593</td>
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### Sheikhpura

### Nalanda

### Patna

### Bhojpur

### Buxar

### Kaimur

### Rohtas

### Aurangabad

### Gaya

### Nawada

### Jamui

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of 28 percent and the same is true about female population, the highest growth rate has been observed in the year 2001, with a growth rate of 29 percent, which is 1 percent higher than the male growth rate. In the same way, in the census year 1991, female population, with a growth rate of 20 percent, recorded 1 percent higher growth rate than male population in the South Bihar Plain, with a growth rate of 19 percent. Similarly, in South Bihar Plain, the highest growth rate of population was recorded in the year 2001 with a growth rate of 27 percent, but the growth of female population was 28 percent, which is again 1 percent higher than the population growth of male. But, in the same year, 1981, female population recorded the highest growth rate, with a growth rate of 30 percent, which is 5 percent higher than male growth rate of population in year 2010. South Bihar plain recorded 1 percent higher growth rate in female population, with a growth rate of 24 percent, as compared to 23 percent growth rate in male population.

Therefore if we compare the growth of male and female population from 1901 to 2011 in Bihar as a whole and south Bihar plain, we find that the growth of population generally remained lower in South Bihar plain as compared to Bihar state.

In 1951, Bihar recorded a growth of 11 percent in male, whereas female recorded a growth rate of 10 percent which is 1 percent lesser than the growth rate of male population, but South Bihar plain male recorded a growth rate of 14 percent as compared to 13 percent growth rate, recorded by female population.

According to 1951 census, there are only seven districts of South Bihar plain, where female growth rate is higher than the male growth rate, namely, Banka, Sheikhpura, Nalanda, Bhojpur, Buxar, Nawada and Jamui, but the highest growth rate was recorded by Nawada, with a growth rate of 13 percent as compared to 9 percent growth in male population. There is only one district, namely Patna, which recorded similar growth rate, both in male and female, with a growth rate of 18 percent, whereas the lowest growth of population was recorded by Munger. This increase in growth of female population amongst seven districts of South Bihar plain may be attributed to the tendency of outmigration of male population for higher opportunities to the neighbouring districts or neighbouring state.

In the year 1961 Bihar recorded a lower growth in male population, with a growth rate of 19 percent as compared to 20 percent growth in female population, whereas, South Bihar plain recorded similar growth rate of 18 percent in both male and female population. It is very surprising that out of seventeen districts, ten districts recorded higher growth in female population as compared to male, whereas, four districts, namely, Banka, Nalanda, Rohtas and Gaya, recorded similar growth rate, both in male and female population. It means there are only three districts, namely Bhagalpur, Sheikhpura and Patna, which recorded higher growth in male population. This increment in the growth of female population may be due to greater care and social recognition of baby girls.

In South Bihar plain, year 1971, female population growth rate drastically declined from 18 percent in 1961 to 13 percent, whereas, male population recorded a growth rate of 24 percent, which is much higher than the female. In the same year male population recorded a growth of 24 percent and female, 17 percent in the state of Bihar, as a whole. It is very surprising that none of the district recorded lower growth rate of female population than the growth rate of South Bihar Plain, and the lowest growth of female population was recorded by Munger, with a growth rate of only 15 percent, which is 2 percent higher than the growth rate of South Bihar Plain. Despite an absolute increase in population in the census year 1971, female population recorded a reartered growth rate, which may be attributed to mortality in females, and this excess mortality of females, may be due to discrimination against women, which includes less favourite access to food and health care.

Census Report of 1981 reveals that in South Bihar plain, female population recorded a highest growth of population till date, with a growth rate of 30 percent, whereas, male growth rate was 24 percent. On the other hand Bihar as a whole recorded a growth of 24 percent in male and 17 percent in female. There are only two districts, namely Bhagalpur and Gaya, recorded a higher growth rate in female population, whereas, three districts, namely Patna, Jehanabad and Arwal, recorded similar growth rate of both male and female population. It has been observed from the table that there has been a tendency of decline in population growth in almost all the districts in the census year 1981. This overall decrease may due to revival of
political support for the family planning programme, but the implementation was very difficult because of its bureaucratization. There was an enthusiastic support for it amongst the people, but the political compulsion was not supportive and appropriate for the family planning.

The census year of 1991 reveals that there was an overall decline in population in both Bihar and South Bihar plain, but male population recorded a 1 percent higher growth rate than previous census of 1981, with a growth rate of 26 percent. According to 1991 census none of the district recorded higher growth rate of female population and the highest growth rate of male population was observed by Nalanda, with a growth rate of 28 percent. If we go through all the districts there has been a decrease of growth rate in both male and female population, in almost all the districts, except few, in the census year 1991. This decrease in growth of both male and female population may be attributed to control over birth rate, which was created by the awareness among people by Government policies. Government implemented the national population policy which emphasized on adolescent education, child bearing and delayed marriage. Apart from this there was rising rate of literacy among people.

The census report of 2001, recorded a higher growth of male and female population in both Bihar and South Bihar plain, but female population registered higher growth rate as compared to male population. It is surprising that out of seventeen districts in South Bihar plain, sixteen recorded higher growth rate as compared to male population and only one district, namely, Bhojpur recorded equal growth rate of male and female population with a growth rate of 25 percent. Year 2001 indicates a slight improvement in growth of female population over the census report of 1991. This gain can be attributed to the improvement in the status of women in society and better health facilities. But it may also be attributed to the fact that large number of male population migrated to Delhi, Haryana and Mumbai in search of better job opportunities.

In the year 2011, there has been a general decline of growth of male and female population, as compared to census report of 2001, in both Bihar and South Bihar plain. But in South Bihar plain female population recorded a higher growth rate as compared to male. Out of seventeen districts, eight districts, namely, Bhagalpur, Sheikhpura, Nalanda, Patna, Bhojpur, Buxar, Kaimur and Rohtas, recorded higher growth of female population as compared to male, whereas, three districts, namely, Munger, Gaya and Jamui recorded equal growth rate of male and female population, separately. There has been a general decline in population growth rate in Bihar, as Bihar’s population continued to surge in the past decades, whereas state of Bihar is among the top three populated state of the country. This decrease in general growth rate of population may be attributed to the fact that women are using contraceptives for birth control as well as using modern method of family planning, but child marriage is still a problem in Bihar. This census report of 2011, indicates that there is a continued preference of male children over female children, which is a matter of grave concern.

<table>
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<tr>
<th>District</th>
<th>1951 Male</th>
<th>2011 Male</th>
<th>% Growth</th>
<th>District</th>
<th>1951 Female</th>
<th>2011 Female</th>
<th>% Growth</th>
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<td>236,589</td>
<td>916,064</td>
<td>287</td>
<td>239,578</td>
<td>844,341</td>
<td>252</td>
<td></td>
</tr>
<tr>
<td>Jehanabad</td>
<td>178,874</td>
<td>585,582</td>
<td>227</td>
<td>175,259</td>
<td>539,731</td>
<td>207</td>
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</tr>
<tr>
<td>Arwal</td>
<td>115,383</td>
<td>363,497</td>
<td>215</td>
<td>113,051</td>
<td>337,346</td>
<td>198</td>
<td></td>
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<tr>
<td>BIHAR</td>
<td>14,545,921</td>
<td>54,278,157</td>
<td>273</td>
<td>14,539,096</td>
<td>498,21295</td>
<td>242</td>
<td></td>
</tr>
<tr>
<td>SOUTH BIHAR</td>
<td>5,658,606</td>
<td>20,147,474</td>
<td>256</td>
<td>5,522,575</td>
<td>18,404,451</td>
<td>233</td>
<td></td>
</tr>
</tbody>
</table>

Source: Census Reports

According to table 2, there is a great difference between the growth rate of male and female population during last six decades (1951-2011). Bihar as whole recorded a growth 273 percent in male population, which is much higher than the growth of female population with a growth rate of 242 percent. Almost same conditions prevail in South Bihar plain, with a growth of 256 percent in male as compared to 233 percent growth in female, which is, 23 percent lesser than the growth rate of male population these decades. During these sixty years, highest growth rate among male population was recorded by Jamui, with a growth rate of 287 percent, which is followed by Gaya (284 percent) and Kaimur (282 percent), whereas the lowest growth rate was observed by Munger, with a growth rate of 202 percent. If we see the growth rate of female population during this
period, we find that the highest growth rate was observed by Kaimur with a growth rate of 264 percent which is 18 percent lower the male population growth. Kaimur is followed by Aurangabad and Jamui, with the same growth rate of 252 percent, whereas the third highest growth rate was observed by Rohtas and Bhojpur, with the same growth rate of 248 percent.

On the basis of Table 2, we have observed that all the districts of South Bihar plain have recorded lower growth of female population over sixty years from 1951 to 2011. The districts of Bihar and South Bihar Plain, according to the percentage growth of male and female population during six decades from 1951 to 2011, can be categorized into Low (180.01-210.00), Moderate (210.01-240.00), High (240.01-270.00) and Very High (270.01-300.00). If we go through the female population, there are eight districts, namely, Munger, Lakhisarai, Sheikhpura, Nalanda, Bhojpur, Buxar, Jehanabad and Arwal, which recorded low growth of population, whereas, there are only one district, namely, Banka, is categorized under moderate growth of population. Apart from these there are eight districts, namely, Bhagalpur, Patna, Kaimur, Rohtas, Aurangabad, Gaya, Nawada and Jamui, can be categorized under high growth of population, whereas, none of the district can be put under very high growth rate among female growth of population. In the same way if we go through the percentage growth of male population during these six decades, we find that there is only one district, namely, Munger, which is categorized under low growth of population, whereas, seven districts, namely, Lakhisarai, Sheikhpura, Nalanda, Bhojpur, Buxar, Jehanabad and Arwal are categorized under moderate growth of population. Apart from these eight districts, there are only two districts, namely, Banka and Rohitas, which can be categorized under high growth of population. Out of these seventeen districts there are seven districts, namely, Bhagalpur, Patna, Kaimur, Aurangabad, Gaya, Nawada, and Jamui, which can be categorized under very high growth of population.

It is apparent from table 2 that the percentage growth of population during six decades from 1951 to 2011 is higher among male population. This high growth of male population over sixty years may be due to preference for the sons, because there is a general feelings amongst people that sons provide economic support to the household, especially during the old age of their parents. Since daughters leave their parental home to live with husband’s family after marriage, they are not considered to be any kind of support to their parents. Above all daughters are not preferred, because parents are
required to pay large sums of their hard earned money as a dowry. Apart from this one of the most important reason for the high growth of male population is that the sons are considered to light their funeral pyre. The reasons which, have been mentioned above leads to female infanticide and sex selective abortion.

**District wise variation in sex ratio**

Sex composition is extremely vital for any fruitful demographic analysis, because changes in sex ratio largely reflects the underlying socio-economic and cultural characteristics of the society, and is an important social indicator to measure the equality between male and female at a given point of time. We will analyse the variation in sex ratio on the basis of district wise Census data regarding male and female population from 1901 to 2011 in South Bihar plain. Since the Census data regarding male and female population from 1901 to 1951 is not regular, and it has been observed that there has been a significant variation in the growth of population before 1951 due to socio-economic variation, therefore a detailed account of the sex ratio will be presented after 1951.

According to the census 2011 the sex ratio of India fares among the worst in South Asia, because India with a sex ratio of 940 females per thousand male recorded lowest among the neighbouring countries like Bangladesh (978), Pakistan (943), Sri Lanka (1034) and Nepal (1014), except China, which has reported poorer than India, with a sex ratio of only 926 females per thousand male. Apart from this Afghanistan and Bhutan also represented lower sex ratio than India. If we take into account the sex ratio of the study area, i.e., South Bihar plain and Bihar as a whole, the 2011 census reveals an alarming scenario. The sex ratio for South Bihar Plain remained favourable to female till 1921, with a sex ratio of 1003 females per thousand male, but, it reveals a declining trend from 1052 in 1901 to 1003 in 1921. But different conditions prevails in Bihar, with somewhat higher sex ratio than South Bihar Plain, with a sex ratio of 1061 in 1901 to 918 in 2011. Sex ratio has always remained favourable to female till 1961, except the year 1931. After 1961, there has been a continuous decline till 1991, but census report of 2001 and 2011 reported an improvement in sex ratio. Improvement in sex ratio from 2001 onward may be attributed to multi-pronged strategy adopted by the government to build a favourable environment for girl child by adopting gender sensitive policies. Government have intensified the implementation of Prohibition of Sex Selection Act (1994) which has been further amended at various stages. All the state governments were requested by Ministry of Health and family welfare to strengthen the implementation of the Act to stop the illegal sex determination.

**Sex Ratio during 1901 – 1921**

Sex ratio for women always remained unfavourable for female because of patriarchal society in India, but Bihar as a whole and South Bihar plain recorded a favourable sex ratio for woman from 1901 to 1921. It has always been higher than that of the country as a whole during this period. Higher sex ratio between 1901 to 1921, may be attributed to the fact that the Indian religion and philosophy considered womanhood nearer to divinity, and respectable position of pride has been assigned by our religions scriptures. Our history witnesses high respect to womanhood. Social reform like sati pratha, child marriage, prevention of widow
remarriage, female infanticide, etc. were brought by social reformers like Raja Ram Mohan Roy, Ishwar Chandra Vidya Sagar, Swami Vivekanand and Dr. Anne Besant. The great saint, Swami Vivekananda stated that, the country which had no respect for womanhood could never become great. Under Gandhiji’s leadership, the India’s nationalist movement, brought changes in the prevailing attitude towards women. Therefore, lot of efforts were made to promote gender equality, which can contribute in the overall development of the society and affected the sex ratio in favour of women.

During 1901 to 1921, South Bihar plain as a whole recorded the sex ratio of 1052 female per thousand male in 1901, but Bihar recorded even higher sex ratio of 1061 female per thousand male 9 point higher. From 1901, onward sex ratio started declining and reached 1003 in South Bihar plain and 1020 female per thousand male in Bihar which is 17 points higher than South Bihar plain. Out of seventeen districts in South Bihar plain, six districts namely, Bhagalpur, Banka, Bhojpur, Buxar, Kaimur and Rohtas recorded higher sex ratio as compared to South Bihar plain in 1901; but there are four districts, namely, Bhojpur, Buxar, Kaimur and Rohtas recorded similar sex ratio of 1095 female per thousand male which is 36 points higher than the sex ratio of Bihar (1061). In the year 1921, six districts, namely, Bhagalpur, Banka, Bhojpur, Buxar, Kaimur and Rohtas recorded similar sex ratio of 1028 female per thousand male, which is 25 points higher than sex ratio of South Bihar plain and 8 points higher than the sex ratio of Bihar.

**Sex Ratio during 1921-1951**
From 1921 onward there has been a marked decline in sex ration, and remained continued till 1951, with sex ratio of 982 female per thousand male in 1931to 976 in South Bihar plain. If we look at the sex ratio of Bihar, we find that there is a significant variation in sex ratio from 995 female per thousand male in 1931, which is 25 points lower than the previous census year of 1921, but in the census year 1941, it again raised to 1002 female per thousand male and again declined to 1000 female per thousand male in 1951, therefore, there is a decline of 20 points from the census year 1921.

If we go through the sex ratio of all the seventeen districts of South Bihar plain, during this period from 1921-51 we find that all the districts registered a continuous decline from 1921 onward, same as revealed by state of Bihar and South Bihar plain. Out of seventeen districts, fifteen districts namely, Bhagalpur, Banka, Munger, Lakhisarai, Sheikhpura, Bhojpur, Buxar, Kaimur, Rohtas, Aurangabad, Gaya, Nawada, Jamni, Jehanabad and Arwal, recorded sex ratio higher than South Bihar plain during this period, extending from 1921 to 1951, but there are five districts, namely, Aurangabad, Nawada, Gaya, Jehanabad and Arwal recorded sex ratio, which is equal to male, i.e., 1000 female per thousand male, it can be attributed to the fact, that these districts, where no outmigration of male population occurred, because of their engagement in agricultural activities, as these districts are agriculturally rich area because of the irrigation facilities available by different rivers and fertile alluvial soil deposited by these rivers. Nawada is only one district, with a sex ratio of 1039 female per thousand male, recorded higher sex ratio than 1901 (1036) and is the only district, which recorded higher sex ratio favourable to women till 1981, with a sex ratio of 1001 female per thousand male, even recorded highest sex ratio of 1054 female per thousand male in 1961, among all the seventeen districts of South Bihar plain. Therefore we can say that there is a significant variation in sex ratio during 1921-1951, among all the districts of South Bihar plain. It gives an idea that the birth of girl child started declining in South Bihar plain and state as a whole after 1921. Declining sex ratio became a grave concern after 1921, but government did not take it in consideration, seriously. After 1921, women living in the South Bihar plain might have faced the family and social pressures to produce baby boy. It is only because of the fact that gradually baby boy occupied a superior position in the society for different reasons like kinship, inheritance, marriage, identity, status, lineage and economic security. The preference for baby boy prevailed all over South Bihar plain after 1921, and it cut across caste and religion, which led to the discrimination against girl child even before their birth.

**Sex Ratio during 1951-61**
In the year 1961, South Bihar plain as a whole recorded a sex ratio of 978 female per thousand male, which is 2 points higher that the sex ratio of 1951, but at the same time Bihar recorded even higher sex ratio than South Bihar plain with a sex ratio of 1005 female per thousand male, which is 5 points higher than the sex ratio of 1951. Out
of seventeen districts, eleven districts, namely Banka, Lakhisarai, Sheikhpura, Bhojpur, Buxar, Aurangabad, Gaya, Nawada, Jamui, Jehanabad and Arwal recorded a sex ratio higher than South Bihar plain, as a whole, and out of these eleven districts, seven districts, namely Sheikhpura, Bhojpur, Aurangabad, Nawada, Jamui, Jehanabad and Arwal recorded sex ratio, favourable to women, which is more than 1000 female per thousand male, whereas, the highest sex ratio was observed by Nawada with a sex ratio of 1054 female per thousand male, which is followed by Bhojpur (1028) and Jamui (1020). The high sex ratio in Nawada district may be contributed due to literacy rate which remained higher as compared to other districts.

If we classify the South Bihar plain according to sex ratio in 1961 into Low (Below 900) Moderate (900.01-920.00), High (920.01-940.00) and Very High (above 940), none of the district can be categorized under low sex ratio, it is only because of the fact that it was the beginning when the actual decline in sex ratio was observed in South Bihar plain, because upto 1921, sex ratio remained in favour of women, but from 1921 to 1951, no doubt there were decline in sex ratio but it remained irregular, throughout South Bihar plain, as well as state of Bihar as a whole. Patna is the only district which recorded moderate sex ratio (900.01-920.00), with a sex ratio of 920 female per thousand male. In the same way Bhagalpur is the only one district which recorded high sex ratio(920.01-940.00) of 928 female per thousand male. Apart from these two districts, fifteen districts, namely, Banka, Munger, Lakhisarai, Sheikhpura, Nawada, Bhojpur, Buxar, Rohtas, Aurangabad, Gaya, Nawada, Jamui, Jehanabad, Nalanda and Arwal recorded very high sex ratio (above 940).

**Sex Ratio during 1961-71:**
In the year 1971, the sex ratio in South Bihar plain declined to 891 female per thousand male from 978 in 1961, whereas Bihar recorded as sex ratio of 957 female per thousand male, which is 66 point higher than South Bihar plain. Bihar, with a sex ratio of 957 also registered a decline of 48 point from the year 1961. Out of seventeen districts, sixteen districts namely, Bhagalpur, Banka, Munger, Lakhisarai, Sheikhpura, Nalanda, Bhojpur, Buxar, Kaimur, Rohtas, Aurangabad, Gaya, Nawada, Jamui, Jehanabad and Arwal recorded sex ratio higher than South Bihar plain, whereas, districts, namely Bhojpur, Aurangabad, Gaya, Nawada, Jamui and Arwal recorded higher sex ratio than the sex ratio of Bihar. Among all the districts of South Bihar plain, Nawada, recorded the highest sex ratio (1016), which remained in favour of women, but it declined 38 points from the year 1961, whereas Patna recorded lowest sex ratio of 890 female per thousand male.

If we classify the districts of South Bihar Plain according to the variation in sex ratio into low, moderate and high, we find that there are three districts, namely Bhagalpur, Munger and Patna, which are categorized under low sex ratio (below 900) and none of the district can be categorized as moderate sex ratio (between 900.01-920.00). Table 1 reveals that there are four districts, namely, Banka, Kaimur, Rohtas and Nalanda which are categorized under high sex ratio (between 920.01-940.00). Apart from these district, there are ten districts, namely, Lakhisarai, Sheikhpura, Bhojpur, Buxar, Aurangabad, Gaya, Nawada, Jamui, Jehanabad and Alwar, which recorded very high sex ratio (above 940).

**Sex Ratio during 1971-81:**
According to the census year 1981, South Bihar plain recorded a sex ratio of 931 female per thousand male, which is 40 points higher than the year 1971, this may be attributed to emigration of male population to the distant places from Bihar to other states in search of better job opportunities. Bihar recorded a sex ratio of 948 female per thousand male, which is 17 points higher than South Bihar plain, but it is 9 points lower than the sex ratio of Bihar in 1971. Out of seventeen districts there are eight districts, namely Sheikhpura, Bhojpur, Aurangabad, Gaya, Nawada, Jamui, Jehanabad and Arwal recorded sex ratio higher than South Bihar plain, but seven districts namely, Bhojpur, Aurangabad, Gaya, Nawada, Jamui, Jehanabad and Arwal, recorded, sex ratio higher than Bihar. Apart from this Nawada registered the highest sex ratio of 1001 female per thousand male, which remained favourable from 1901 till 1981. It is very surprising that there is only one district, namely Bhagalpur with a sex ratio of 898 female per thousand male recorded, 2 points higher than 1971, whereas; Patna, the capital city of Bihar recorded the lowest sex ratio (889 female per thousand male) among all the district of
South Bihar plain. The stratification of district according to sex ratio shows that there are only three districts namely, Bhagalpur, Munger and Patna, which can be categorized under low sex ratio (below 900), whereas, only two districts, namely, Kaimur and Rohtas come under moderate sex ratio (900.01-920.00). Apart from these five districts, only four districts namely, Banka, Lakhisarai, Nalanda and Buxar are categorized under high sex ratio (920.01-940.00), whereas, rest of the districts, namely, Sheikhpura, Bhojpur, Aurangabad, Gaya, Nawada, Jamui, Jehanabad and Arwal can be put under very high sex ratio (above 940). The higher number of the districts, which are categorized under high sex ration (above 940) is a positive sign towards the improvement in the declining sex ratio which may be attributed to the awareness of government policies towards saving girl child.

**Sex Ratio during 1981-91:**
The census year of 1991, again registered a decline of 37 points with a sex ratio of 894 female per thousand male, as compared to 931 (year 1981) in South Bihar Plain. Almost same conditions prevailed in Bihar, with a decline of 41 points, registered sex ratio 907 female per thousand male, as compared to 948 in the year 1981. Out of seventeen districts in South Bihar plain there are ten districts, namely, Sheikhpura, Nalanda, Bhojpur, Rohtas, Aurangabad, Gaya, Nawada, Jamui, Jehanabad and Arwal recorded sex ratio higher than South Bihar Plain, and there are only five districts, namely, Aurangabad, Gaya, Nawada, Jehanabad and Arwal, recorded sex ratio, higher than the sex ratio of Bihar. Nawada with a sex ratio of 936 female per thousand male again recorded the highest sex ratio among all the districts of South Bihar plain, but the lowest sex ratio was observed in Munger with a sex ratio of 855 female per thousand male.

If we categorize all the districts in low, moderate, high and very high, on the basis of sex ratio, we find that there are nine district, namely, Bhagalpur, Banka, Munger, Lakhisarai, Sheikhpura, Nalanda, Patna, Buxar, Kaimur and Rohtas, which can be categorized under low sex ratio (below 900), whereas only three districts, namely, Bhojpur, Aurangabad, Jamui recorded moderate sex ratio (900.01-920.00). Apart from the above twelve districts, only four districts, namely, Gaya, Nawada, Jehanabad and Arwal, recorded high sex ration (920.01-940.00), but none of the district can be categorized under very high sex ratio (above 940). The higher number of districts under the category of low sex ratio (below 900) is a matter of grave concern. The declining population of girl child is a challenge as well as responsibilities towards our society and the government. This decline in sex ratio may be attributed to the literacy rate, because there can be a link between growing literacy...
rate and declining sex ratio. Due to the growing literacy rate, the women of the rural areas are opting for institutional deliveries, as they have become aware. These women from the rural areas, whenever visit the clinics, they also come to know about the techniques of sex determination, and without giving second thought they go for sex determination and because of girl child prejudice, as they come to know that they are having a girl child; they immediately opt for abortion.

Sex Ratio during 1991-2001:
Census year 2001, presented a data regarding sex ratio, which helps to take respite from the gloomy data of declining sex ratio since 1901. Bihar as a whole recorded 12 points higher, with a sex ratio of 919 per thousand male, than the sex ratio of 1991. In the same way South Bihar plain with a sex ratio of 907 female per thousand male also recorded 13 points higher sex ratio than the year 1991. Out of seventeen districts, all the districts recorded higher sex ratio as compared to previous census year, except, Bhojpur, with a sex ratio of 901 female per thousand male, 2 points lower than the previous census year of 1991. Among all the seventeen districts, there are six districts, namely Lakhisarai, Gaya, Nawada, Jehanabad, Arwal and Aurangabad, recorded sex ratio, higher than the Bihar as a whole; but there are twelve districts, namely, Banka, Lakhisaria, Sheikhpura, Nalanda, Rohtas, Buxar, Gaya, Nawada, Jamui, Jehanabad, Arwal and Aurangabad, recorded sex ratio higher than South Bihar plain, as a whole. Again Nawada recorded highest sex ratio, with a sex ratio of 945 female per thousand male and the lowest sex ratio has been observed by two districts namely, Munger and Patna with the similar sex ratio of 872 female per thousand male.

There are only four districts, namely, Bhagalpur, Munger, Patna and Buxar, which are categorized under low sex ratio (below 900), whereas, eight districts, namely, Banka, Lakhisarai, Sheikhpura, Nalanda, Bhojpur, Kaimur, Rohtas and Jamui can be put under moderate sex ratio (between 900.01-920.00). Apart from these twelve districts, five districts, namely, Aurangabad, Gaya, Nawada, Jehanabad and Arwal are categorized under high sex ratio (between 920.01-940.00), but none of the districts can be categorized under very high sex ratio.

Therefore, overall increase in sex ratio in the census year 2001 represents a good sign against female prejudice in the study area. This increase in sex ratio in the year 2001 may be attributed to the multipronged strategy adopted by government to build a positive environment for girl child; by means of gender sensitive policies, legislations and other provisions. The census data regarding sex ratio in the year 2001 seems encouraging, at first glance, as they show remarkable increase in sex ratio. This increase in sex ratio can also be attributed to better health facilities and improvement in the status of women. This gain in sex ratio may also be due to out-migration of male labour force to Delhi, Haryana and Punjab for better job opportunities.

Sex Ratio during 2001-2011:
The census year of 2001 registered a 1 point decline in sex ratio of Bihar as a whole, with a sex ratio of 918 females as compared to 919 females per thousand males in 2001; but South Bihar plain recorded 6 points higher, with a sex ratio of 913 female per thousand male. District level sex ratio data according to census year 2011, is somewhat discouraging, because, out of seventeen districts, seven districts, namely,
but we have along way to go. To sustain ultrasound technology, medical professionals should be held responsible for the misuse in abortion due to dominant female preference. To go under sex selective abortion, women in the state of Bihar and south Bihar平原 are very unfortunate, alarming and is a cause of concern. There is increasing literacy rate among women, which must have encouraged women to campaign against discrimination of girl child. Above all increasing literacy rate among women has a positive bearing on the sex ratio, because there will be an improvement in sex ratio for every increase in women literacy rate.

There are three districts namely, Bhagalpur, Munger and Patna, which can be categorized under low level of sex ratio (below 900), whereas, there are five districts, namely, Banka, Lakhisarai, Bhojpur, Kaimur and Rohtas, can be put under moderate sex ratio between (900.01-920.00). Apart from the above mentioned eight districts, there are nine districts, namely, Sheikhpura, Nalanda, Buxar, Aurangabad, Gaya, Nawada, Jamui, Jehanabad and Arwal, categorized under high level of sex ratio (920.01-940.00), but none of the district can be recognized under very high level of sex ratio (above 940), which is very discouraging and unfavorable to women in the state of Bihar and south Bihar plain as a whole.

One of the most surprising element we have gone through the discussion of sex ratio of all the districts of south Bihar plain, that the sex ratio of Patna normally remained below low level in the respective census year. It may be attributed to literacy rate, which must have encouraged women, may be under the pressure of family, to go under sex selective abortion due to dominant female prejudice in the society. It has also been encouraged by the criminal tendencies evident in medical profession to earn quick money. Therefore, medical professionals should be held responsible the misuse of ultrasound technology.

Overall there is a slight improvement in sex ratio since 2001, but we have along way to go. The improvement in the sex ratio from 2001 to 2011 may be attributed to the multipronged strategy adopted by the government to develop a positive environment to protect the girl child. Under National Rural Health Mission, many interventions have been launched to improve sex ratio. Government has intensified effective implementation of the prohibition of Sex Selection Act (1994). State has been advised by the Central government to focus at all level from village to district level, to find out the causes behind low sex ratio and religious leaders, women achievers etc. are being involved to campaign against discrimination of girl child. Above all increasing literacy rate among women has a positive bearing on the sex ratio, because there will be an improvement in sex ratio for every increase in women literacy rate.

5. Conclusion

South Bihar plain extends over the area which is located south of river Ganga in the state of Bihar, which is characterized by high population growth and low sex ratio as compared to the country. But one of the most important thing, which is necessary to mention here that the sex ratio for the state remained favourable till 1961, except the year 1931, when sex ratio went down to 995 female per thousand male. Census year 1951 also recorded 1000 female per thousand male, which is equal to the male population. But in South Bihar plain sex ratio remained favourable to women upto 1931, almost same trend has been observed among all the district of South Bihar plain except, Patna, where the sex ratio remained favourable to women only in the year 1901. After 1931 sex ratio always remained unfavourable to women in the study area, therefore the position of sex ratio is not satisfactory. The sex ratio started declining from 1061 female per thousand male in 1901 to 918 female per thousand male in 2011, almost same conditions prevailed in South Bihar plain, it declined from 1052 in 1901 to 706 in 2011. The skewed sex ratio is very unfortunate, alarming and is a cause of concern. There are various factors, which are related with low sex ratio in the study area. One of the major cause of low sex ratio is the son preference. Son preference is most common in Bihar as a whole and South Bihar plain, because they continue the family line, as well as they have higher wage earning in a state like Bihar, where the economy is based on agriculture. Apart from this they are recipients of inheritance, whereas girls are considered as a burden, because of dowry system.
which is deep rooted in the society. This preference to son leads to sex selective abortions due to availability of sex determination facilities, which has become a major reason for imbalance in the sex ratio. Apart from this, female infanticide, abandonment and neglecting, remained in practice in the society. Postnatal discrimination against girl child leads to neglecting their health care and nutrition, which causes higher female deaths. There are several other indirect socio-economic and cultural causes which lead to adverse effect on sex ratio, and therefore women find themselves in a web of problem, which is not going to solve in near future, for the sake of patriarchal society.

Therefore, apart from the government policies, there is an urgent need of people’s attention towards saving girl child. We have seen a ray of hope, since 2001, because the sex ratio has been started improving. But the declining sex ratio has led to imbalance in sex composition, which has several consequences to the society, like; increase in crime against women, lowering of society’s reproductive potential, decline in new household formation and problem of marriage for males, as Haryana is facing nowadays, due to low sex ratio. Therefore, we can say that declining sex ratio has got its profound and frightening impact on our society as well as on whole country and above all, whole mankind.

References