

Mortality Morbidity and Sex Ratio

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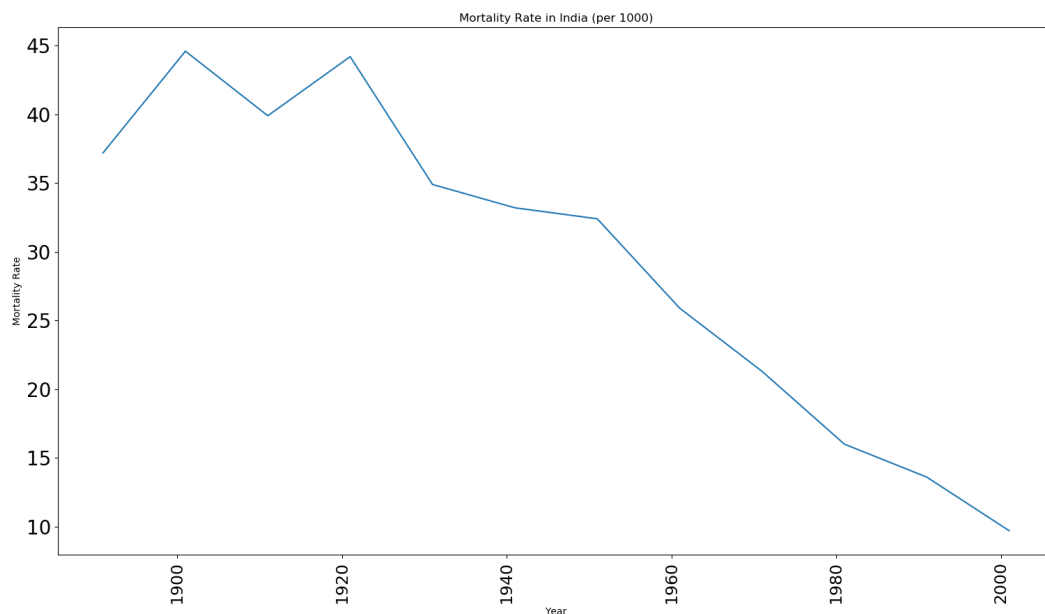
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Mortality and Morbidity

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Introduction-

Throughout the 20th century there have been a lot of catastrophe's in India which have caused a lot of deaths. In the paper I will analyse mortality rate in 3 different sections 1890-1921, 1921-1971, 1971-2000. It will cover the major upheavels in the society, there causations and relief work done. I have tried to find reasons why mortality trends are of such a way and tried to find morbid reasons behind them and tried to connect reasons to politics.



Mortality Pre-Independence

India's birth rate was higher than that of European nations but population growth was a mere 0.4%. This definitely was due to higher death rates which had the biggest reason to be of poverty and undernourishment, a constant factor which will play out throughout the 20th century.

First big blow came as a famine which took nearly 5 million lives from 1896-1901 and affected 70 million people directly. Failed rainfalls in 1897 and 1900 caused devastating affects as costs of food prices skyrocketed and people died in hoards. There was also no hygiene hence bacterium grew in puddles of water and no clean supply of water caused a fever which will turn out to another

epidemic in a few years. But for now people suffered a lot and the British did not allow any interference in the grain trade and net amount of grains were exported during the times. Famine relief centres were built but they had no resources and hence were useless.

This famine sets up as the starting point which induced a horrific chain reaction throughout the 20th century. The water puddles were ideal for growth of mosquitos and with no scientific knowledge about malaria and the dangers of these puddles and lack of immunity, Malaria swept throughout India killing 20 million people from 1895-1921. This was amplified by the modern systems like railways and sewers which allowed easy travel to parasite, lack of hygiene, disposing dead bodies in open areas all the factors were devastating. The worst sufferers were the lowest class where death rates were 9 times that of Europeans deaths. Malaria was the greatest cause of infant deaths and in a village all children were killed.

Plague Epidemic

Plague however topped the charts and was one of the main epidemics in India. Plague was a disease of death, dirt and darkness which found its ideal breeding grounds in chawls and showcased how the industrialisation of India failed. Crowding, poverty, bad town planning, poor sanitary arrangements, and ill-ventilated houses, bulging with inhabitants, helped the spread of plague. The disease spread from Bombay to Calcutta to Karachi via the railways which were a symbol of great British gift to Indians. Poor planning of houses in urban areas led to rampant deaths among the lower class people who had no food whatsoever.

PLAGUE MORTALITY 1897–1905 (in thousands, and rate per mille) ⁷³										
	Bombay		Bengal		Punjab		United Provinces		India	
	thous.	rate	thous.	rate	thous.	rate	thous.	rate	thous.	rate
1897	48	2.5	—	—	—	—	.1	.002	48	.2
1898	86	4.6	.2	.003	2	.1	.1	.003	89	.5
1899	97	5.1	3	.05	.2	.01	—	—	102	.5
1900	33	1.7	38	.5	.6	.03	.1	.003	74	.3
1901	129	6.9	37	.5	17	.8	10	.2	236	1
1902	184	10	78	1.1	176	8.5	43	.8	453	2
1903	281	15.2	65	.9	205	10.2	84	1.7	702	3
1904	224	12.1	75	1.1	365	19.7	179	3.8	906	4
1905	71	3.8	126	2.1	335	16.7	384	8.1	941	4.2

In Punjab as we can see there was a sudden rise in deaths in 1902 rising from 0.8 deaths to 8.5 in a single year causing a massive chaos. Anti plague measures

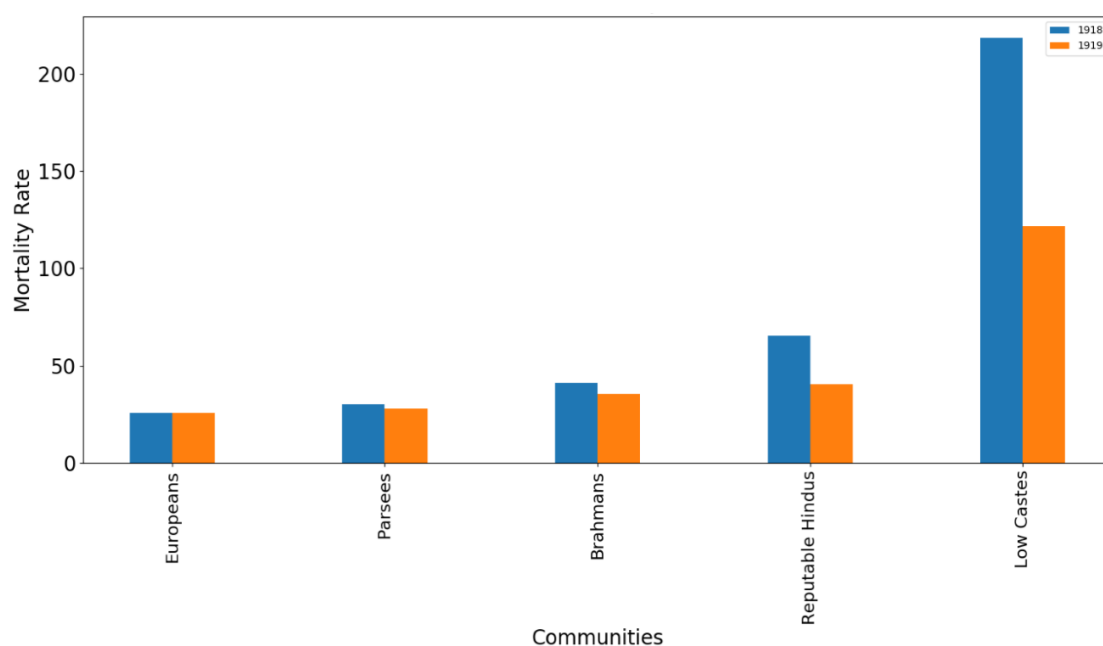
which involved killing rats proved futile as the rats instead escaped and spread more plague. There was a stigma against hospitalisation as it was said whosoever went there never returned. Lack of clean water, food was all to be blamed and this failure of britishers went on to instigate the people against them. The British health officer when asked for medicine said he did not “care two straws ... about ... preventive medicine”

Common Factors in all Epidemics-

With more dependency of urban areas on rural areas for milk, raw produce etc and increase in connection between metros via railways, uncleaned sewers and poor waste disposal all the diseases spread like wildfire and failure of british was exposed. The deaths in these disasters varied heavily among different communities with lower castes facing the brunt as shown in Influenza pandemic which spread like wild fire in rural areas. There was minimal healthcare facilities and the lower caste people living in tight packed dirt-filled and dark places like Chawls was just an invitation to bacterium. In rural areas the situation was even worse and no healthcare 80% of people living in poverty with no housing. For europeans the death rate decreased by 20% but for lower castes it increased by 30% in Bombay(deaths per mile):-

Year	Europeans	Parsees	Brahmans	Reputable Hindus	Low castes
1919	25.5	30	41	65.5	218.5
1920	25.5	28	35.5	40.5	121.5

Influenza Deaths in 1918-19 (Bombay)



Among genders, woman suffered a lot as the society was patriarchal and there was a great social and political turmoil at the time, woman were not allowed equal access to food and healthcare also their were high female infant deaths which shall be discussed by hitesh below. Cholera, diahorrea were also one of the greatest killers.

These pandemics showcased the inefficiency of British government which in the coming years staged the way for a political revolution in India and played an important role to motivate the people against the British.

Slowly Indians started to realise the mistake and from 1921 the mortality rate started to fall slowly. This happened because of scientific developments in 1920s and more knowledge about spread of diseases could be discovered. There was minimal effort done by British though. The mortality rate has been falling since then but the stats of 1941 are questionable because of war. There were minor famines in 1920s and mid 30s but late 30s and early 40s encountered one of the deadliest disaster history was about to witness.

Bengal Famine 1942-43

In 1940s several Indians were recruited for war and many of them went “missing”. With Japan knocking the door on Burma in WW2 food supplies from burma were halted and 1942 bengal recieved cyclones and torrential rainfalls which led to 70-80% crops failing in a fungal infection affecting wheat. Horrific images were globalised worldwide and British were finally forced to provide some help in 1943. The food which reached there was taken away from ports for war supply. In 1944 malaria and small pox epidemic also occurred which gravened the situation. The situation was so bad that the viceroy could not take it and asked England to help to which Churchill responded “Why is Gandhi not dead?” and refused to what viceroy referred as a preventable disaster. This was the final nail in the coffin and soon Indians wanted out with the Britishers. Their is no numbers but estimated 3 million people died of starvation. There were entire families wiped out and the controversy regarding this is still not over to this date.

Post Independence-

Indian government was faced with challenges to develop a population relatively young which had many challenges given the previous incidences of big famines which are listed accurately in the 1951 census as a pledge to improve those. The mortality rate continued to decline throughout the rest of 20th century. Why and how did this happen?

Policies introduced by Government

Following the socialist approach, prices were regulated and rationed for the poor especially during draughts. The first five year plan was dedicated to agriculture to double production from 55 to 108(million tonnes) from 1950-70. To tackle water problems clean water supply was increased and sewer systems were regularly cleaned in order to decrease water spread diseases. Also vaccine programmes for various diseases like Malaria, Small-pox, Tuberculosis were introduced in order to tackle these diseases. The National Malaria *Eradication* Programme was a huge success and brought live cases from 75 million pre independence to 100,000 in 1970. This was done primarily by spraying insecticides and cleaning techniques. In 1981 National Health Programme was launched which was to provide medical infrastructure to poor people as there was a sense of competition in India because China and even Bangladesh which was seen as inferior to India had launched drastic health programmes to reduce their mortality and performed greatly. Successful campaigns like Universal Vaccination programme which vaccinated almost 90% of infants with DPT, tetanus, BCG and also were successful in prevention of any major epidemic like in case of pre-independence. These were of great success in rural areas also, where majority of the India lived.

Limitations

The expenditure on family planning earlier was very low (0.03% in 1st five year plan to 0.1% to 0.3% in the 3rd and a substantial amount of this was spent on health). Urban areas were targetted more than rural areas where 4/5 th of population lived. By 1970s 85% of urban regions had piped water this figure being very low in the urban areas. The most important point being that though India's mortality rate was reducing, there was still not much improvement as in 1975 21.8% of infants were severely malnourished and 48.3% were moderately malnourished. The efforts of government were functioning like a temporary band-aid to the issue as the biggest issue in this was poverty and to take populus out of **poverty**, skilled people and jobs both were needed. This meant that even though mortality was reduced, the new increasing populus was becoming a burden on the indian government. Only Malaria campaign was successful with clean drinking water still being a big issue in the campaign. Sati was seen till 1987 named by Roop Kanwar which forced the government to ban Sati but the glorification and emotions of people were very much unchanged as before independence.

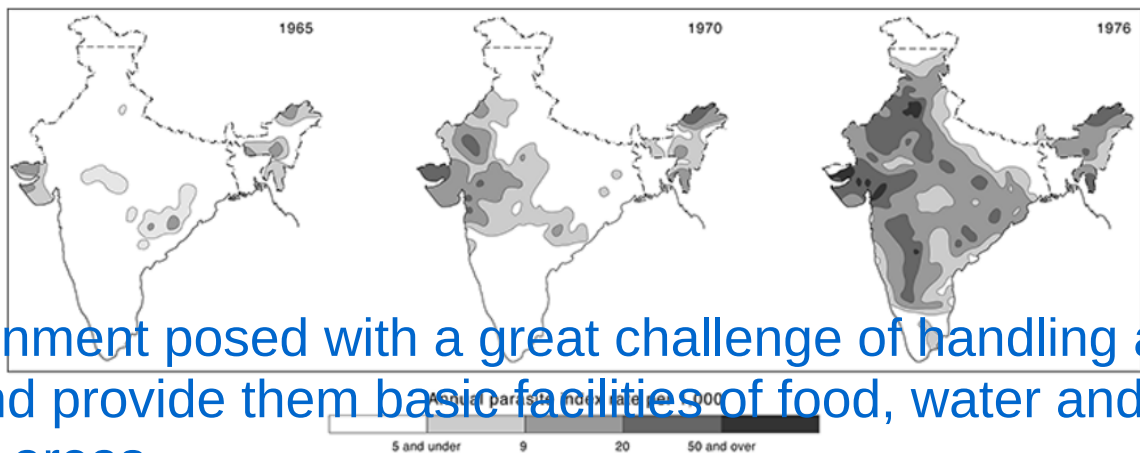
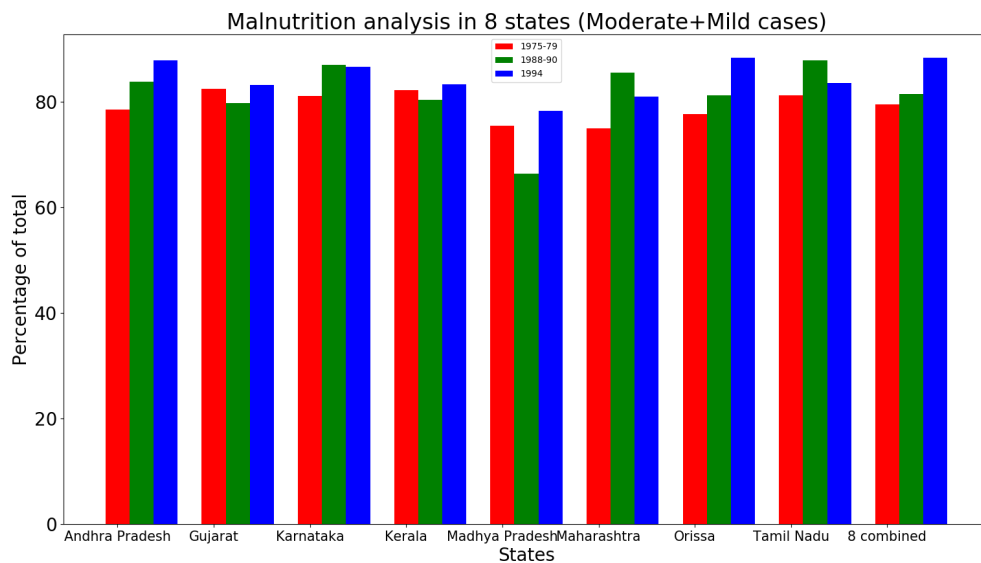


Figure 8.3 Malaria parasite indices, per 1,000 population, based on district-level data, 1965, 1970, and 1976.
Source: Learmonth (1988: 212-13).

Is Economy growth good measurer of mortality?

Often economy is related with mortality and people think decrease in GDP indicates poor mortality rate.

The government from 1950-90 followed the Nehruvian socialist approach in which they aimed to provide all facilities to people. This however could not pan out well due to above mentioned limitations and in 1976 again Malaria struck India back. India was also becoming Politically unstable with emergency in 1975, Indira and Rajiv Gandhi's assassination frequent cyclones and small draughts which put a lot of pressure on economy of India. There was hence fall in GDP but overall as we can see still the mortality rate continued to decrease despite the economic hardships. Overall the situation can be said to get better.

There was a famine in Bihar in 1965-66 which was handled fairly well by the government and food was transported quickly.

Even though the government policies came with limitations, they worked effectively as the number of deaths caused by communicable diseases was half of total in 1960s and became a quarter in 1980s. There was a rise in new reasons for deaths with HIV virus entering the society in 1985 a disease current day world struggles with. With Modernisation there were new reasons of deaths like road and train accidents in 80s and 90s, crimes and domestic abuse which were rather ignored earlier and as standards of living increased, challenges increased.

Sex Ratio

:-Hitesh Goel

Introduction:

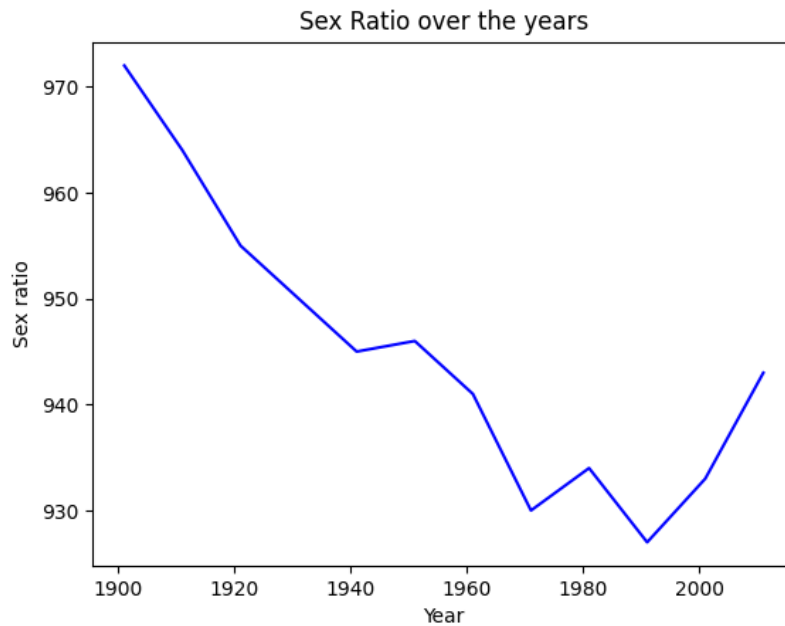


Fig 1. Sex Ratio since 1901

The increasing ratio of males to females has been a long-debated topic in the country and has been a headache for all the governments in charge of introducing measures to help restore the balance. Now we will look at some of the trends that may have worsened or gotten better post-independence and try to find out why they may be happening. As the above graph shows, the sex ratio in India declined steeply in the 20th century, with it reaching its lowest ever mark in 1991.

Child Sex Ratio:

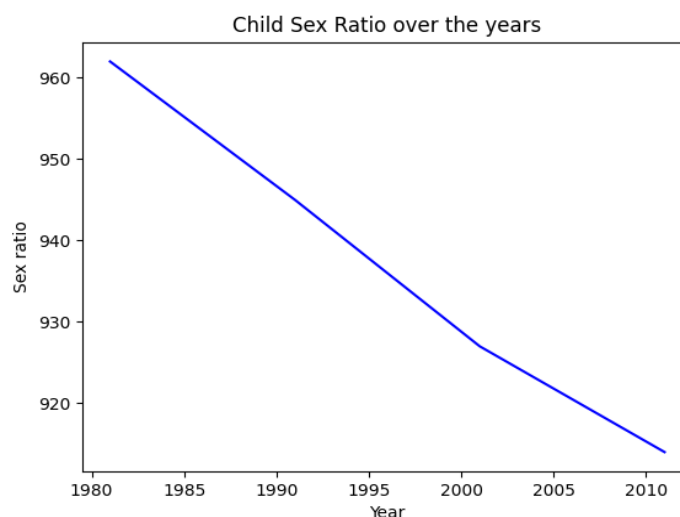


Fig 2. Child Sex Ratio since 1981

As we can see, the child sex ratios paint an even more grim picture for us. While the overall sex ratios have shown signs of improvement over the last two decades, the child sex ratio continues to fall steeply, with it hitting its lowest point in the 2011 Census at 914. This is a cause for great concern. While these ratios have fallen throughout the country, the sharpest decline has been recorded in the North-Western States, followed by the Northern States. Punjab, Haryana, Himachal Pradesh, Gujarat, and Maharashtra have significantly declined in the 1981-2001 period. However, in Southern states, a very minimal decrease has been observed, suggesting a favourable attitude towards the girl child.

Causes for decline in child sex ratio

One of the major causes of the child sex ratio declined during the 20th century was sex-selective abortion. With the advent of technology, it was possible to know the sex of the child before its birth, and families with a strong preference towards sons used to get the mother aborted in case she was carrying a girl child. Female foeticide and general neglect of the girls (leading to a higher mortality rate in some regions) was also a significant cause for this sharp decline.

Preference of Sons:

The preference for sons in traditional families has deep roots in India due to cultural and economic reasons. Upon marrying, daughters are required to move in with their in-laws. Not only this, we all know about the practice of dowry, which the girl's family have to give to her in-laws during the time of marriage. This means that daughters are considered of little 'economic benefit' and a 'burden' on their families, and thus the preference towards sons. Also, Hindu tradition requires the son to perform the final rites upon his parents' deaths, and this also plays a significant role in sons being preferred over daughters. Their elders pressure parents to bear sons. In some households, it causes great stress to a pregnant mother because the birth of a female child is synonymous with 'shame' in society and is somehow blamed upon the child's mother.

The Prohibition of Sex Selection Act:

I have already talked about how sex-selective abortions were a huge problem and cause for the decreasing sex ratios in the late 20th century. To counteract this problem, the Government of India, in 1994, enacted the Pre-Conception and Pre-Natal Diagnostic Techniques (PCPNDT) Act, also known as the Prohibition of Sex Selection Act. It became operational in 1996, and it aimed to prevent the abortion of female fetuses. Its significant points included banning the determination of sex of the unborn child by any means and that its practice would result in a hefty fine. However, as we have already shown, the number of female children born compared to the number of male children continued to decrease. So clearly, either this Act was not being implemented strictly enough, or there was a need for more stringent actions to be taken to prevent these abortions.

Limitations of the PCPNDT Act:

In a study conducted in the International Journal of Community Medicine and Public Health, over 1000 women were asked questions related to the Prohibition of Sex Detection Act, and the results of the study were rather revealing. Only one-fourth of the total women knew about the PCPNDT Act, while just 10 per cent were aware of the consequences of violating the Act. Also, 40 per cent admitted that they had thought about the sex determination of their unborn child and 70 per cent agreed that their families have pressured them to bear sons. This shows that there is clearly a lack of awareness about the Act among the general populace.

Not only this but there are also other difficulties in the implementation of this Act. There is an avid ignorance about it amongst different stakeholders. The authorities of different states should be made aware of the provisions and rules of the Act. Some changes also need to be made to the Act. As

mentioned before, if an organisation is illegally using sex detection techniques, they have to pay a fine. However, this punishment is not strong enough because what it means is that after the payment of the fine, they can continue to work like before. This provision should be amended or deleted to stop the perpetrators of this crime from violating this Act.

Child Sex Ratio by Birth Order:

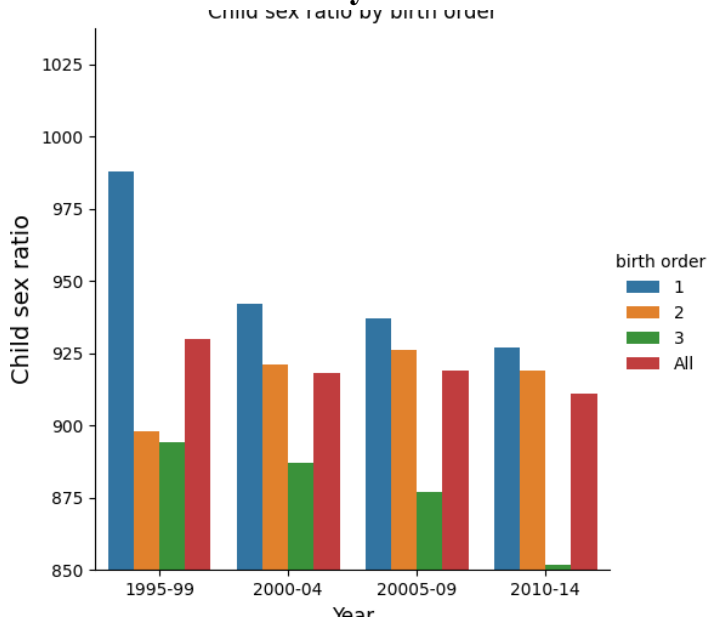


Fig 3. Child Sex Ratio by Birth Order

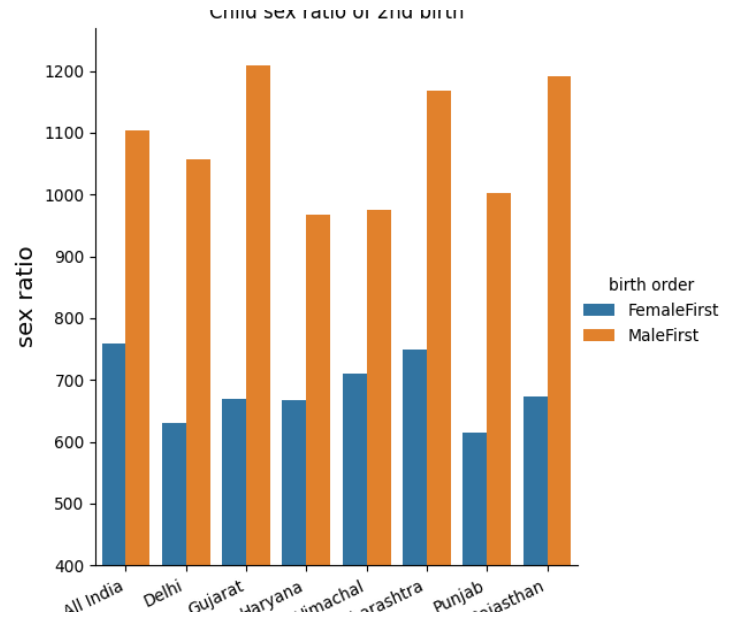
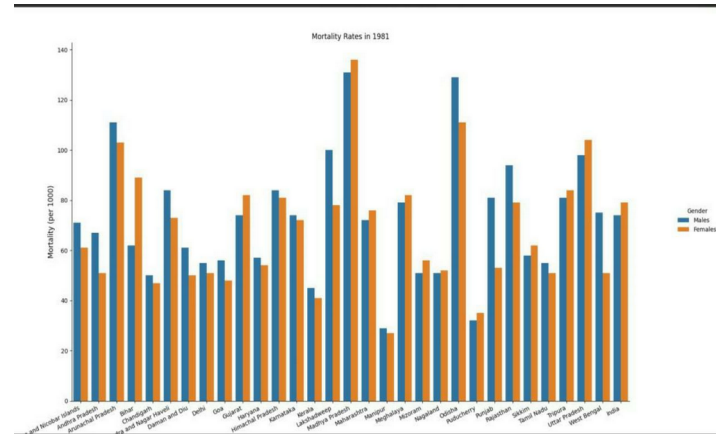
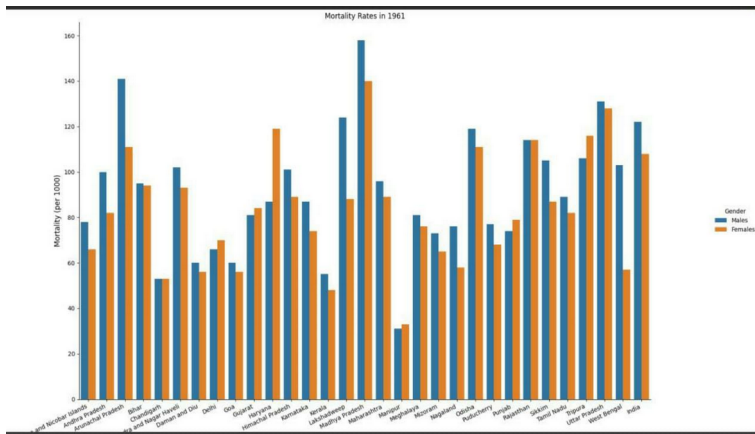


Fig 4. Child Sex Ratio of second birth (1991)

Let us dive deeper into this issue of declining child sex ratios and the preference of sons over daughters in the families. We find some very interesting trends when we look at the statistics of childbirth by order. As the graph above clearly depicts, the gender ratio is the most neutral when the parent is about to have their first child (even though it has declined over the past three decades). However, these ratios fall sharply for the second and third birth, as the parents' preference towards a son starts to kick in, and they probably look to illegal methods to get abortions done if it's a girl child. The second graph (Figure 4) illustrates this point even better. If a male is born first in the family, the sex ratios shoot up over 1100 as the families have no inhibitions towards a daughter. However, if a female is born first, the parents become highly desperate to have a son. The ratios fall to as low as 600 in some states such as Haryana and Punjab! There is a dire need to spread awareness on protecting the girl child and correct people's mentalities towards having daughters in the family.

Infant Mortality Rates:



In the early part of the 20th century, malaria was one of the major reasons for high infant mortality rates. With improvement in health facilities, and development of vaccines, the rates started to go down. As we can see in Figure 5, the infant mortality rates for males were higher on average than for females. However, in the graph on the right (Fig 6), the trend has reversed. Male infant mortality is now lesser on average than females. While the mortality reduced overall with the improvement in healthcare facilities, we see that neglect of the female children again comes to the fore. Research shows that sons are given more importance in families than daughters, and even when it comes to distributing food, the males get a larger share. This results in malnutrition for females and could also be one of the causes of death at such an early age.

Can sex ratio be used as an indicator to judge the position of women in society?

Now we shall try to draw some correlation between the trends of sex ratios over the 20th century in India and other trends such as female literacy and their life expectancy. The latter two can be considered good indicators to judge the standing of women in society. Their correlations with gender ratios shall give us an idea if they may also be used as an indicator.

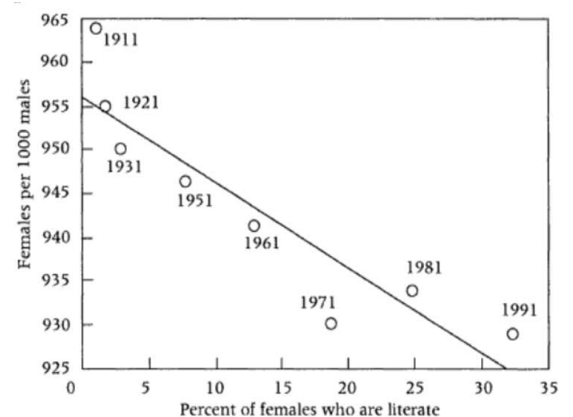
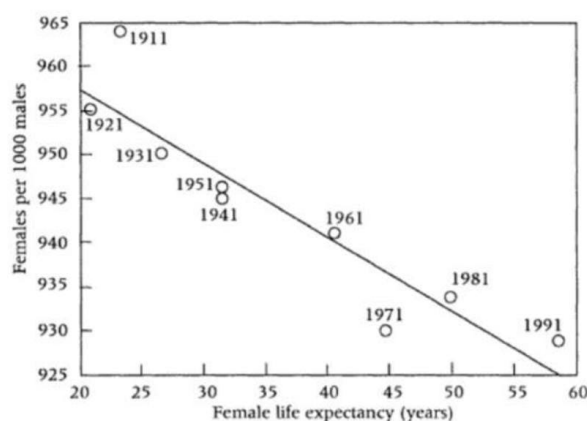


Figure 7 clearly shows that even though the life expectancy of females has increased over the last century, the sex ratios have declined. However, this result is not counterintuitive because the health facilities have improved for both men and women. However, the results of the second graph can be

termed as extremely surprising. There has been a continuous rise in female literacy in the 20th century. This constitutes a highly negative correlation between the two statistics. Even though one may feel that the female: male ratio should have improved with growing literacy amongst women and becoming more and more independent, that has not been the case. Hence, even though there is an urgent need to improve the sex ratios in the country, they may not be the best indicator to help us study the rise in the stature of Indian women in society.

Conclusion:

To conclude, In the earlier 20th century, Indians suffered a lot given to the inefficiency of the British government which was then taken as a motivation to fight against them but it came at an unbearable costs of million of lives. India was to handle a large population and started slow but with private aid, the rate continued to fall throughout the period India has come a long way in this journey, many social evils and problems still do exist in the country. There is a dire need in the country to spread awareness about the protection of girl child. This will only come if we as people, change our mindset about daughters, and stop treating men superior to women. As we grow the subject of past India is bound to be more interesting for the incoming scholars.

Note: All graphs are either drawn using matplotlib and seaborn libraries of python as learnt in HS Lab , with stats taken from indiastat.com (code available on my github repository), or taken from various reasearch papers or books (mentioned in the bibliography).

Repositorylink: https://github.com/hitesh05/ComputationalSciences_intro/tree/main/MoCI_Project
<https://github.com/devesh-002/Computational-data>

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