

Seasonal variations of childbirth in India: A policy and programme planning perspective

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Background

There is no biological interregnum across the seasons in terms of birth. Yet, births do show seasonal patterns, and in India, given the different climatic zones along with varied agro-economical patterns and socio-cultural diversities, it's crucial to study its patterns and their probable causes. Till now, not much research has been conducted on this.

Objective

The present study examined the seasonality of childbirth and corresponding conception throughout the states of India based on the agro-climatic variation present in the country

Data and Methods

- Monthly data from the Health Management Information System, for three years, 2017-18, 2018-2019 and 2019-2020, was utilised.
- 'Total children born' was the primary outcome variable, examined as per cent of total annual births and absolute counts.
- Rural-urban variations were also analysed for each state of India.
- Time-series analyses were conducted to analyse seasonality.
- The extent of birth variations has been studied by actual numbers and by calculating and mapping standard deviations for each state.

Results

❖ Percent Births per month by total annual births, state-wise, HMIS 2017-2020

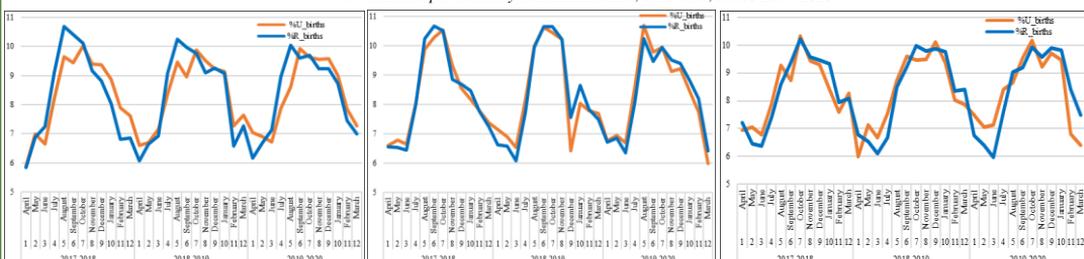


Fig 1: Birth seasonality in Haryana, a northern state of India.

Fig 2: Birth seasonality in Bihar, an eastern state of India.

Fig 3: Birth seasonality in Assam, a north-eastern state of India.

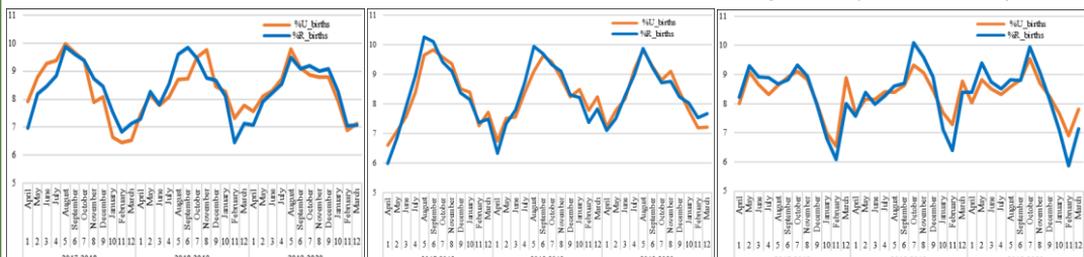


Fig 4: Birth seasonality in Gujarat, a western state of India.

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Fig 6: Birth seasonality in Tamil Nadu, a southern state of India

❖ State-wise standard deviation results, HMIS 2017-18 to 2019-20

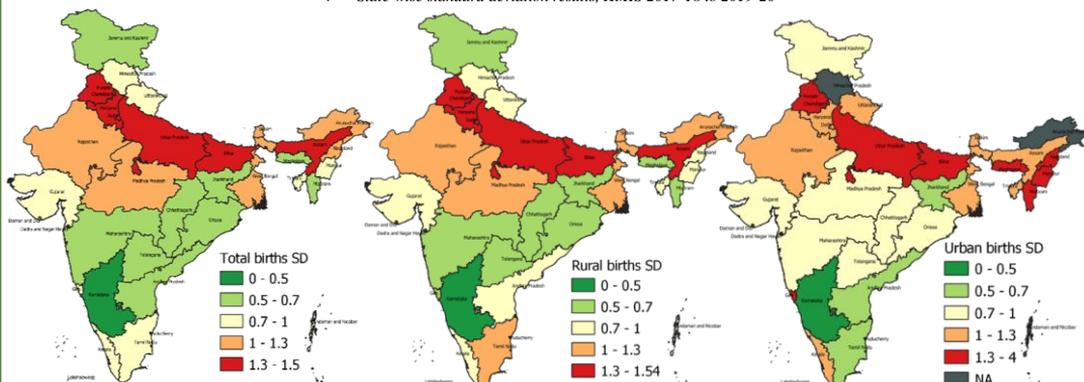


Fig 7: Standard deviation map of seasonal variation in births

Findings

If there were no seasonal birth variations, births every month would have accounted for 8.33% of total annual births. But this study indicated the existence of distinct seasonal variation across states and the extent of variation around the mean was found to be close to 10% in India.

The state-wise variability ranged between 4% to 18%.

Consistent birth peaks in the August – October window and dips in the February-March window, as well as some equally interesting departures from these dominant trends, have emerged at the regional level.

Such seasonality could be attributed to the agricultural patterns, climatic conditions, the farming cycle and coinciding with less abundance of food and money, or just simply because of administrative reporting formalities than an actual increase in birth.

Conclusion

The study has considerable implication for Policy as well as programme implementation.

One immediate aspect of it is to draw attention to meet the unmet contraceptive needs in order to protect the unwanted conception during the peak conception months.

Another important aspect is to ensure the availability of the stock of required vaccines e.g., TT doses, and medicine such as albendazole, IFA, calcium tablets during pregnancy.

The study will also facilitate ensuring the services like primary immunisation to children e.g. BCG to Measles.

These findings are of interest to both academic research and the policy domain, especially identification of peak and lean months will help health service functionaries to prioritise delivery of maternal and child services and family planning facilities. And thus, lead to targeted and focused preventive steps to improve a child's health.