

Still Birth Conundrum in India: Reflection from HMIS Data

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ABSTRACT

High levels of still births in any population should be a matter of concern for its health system. The global still birth rate in 2019 was 13.9. Stillbirths were concentrated in a few countries, with the greatest number found in India with stillbirth rate (SBR) of 17.3. To the best of our knowledge, this is the first study which is reporting conundrum of still births in India using HMIS database as well as presenting spatial clusters of hotspots and cold spots at granular level. Health Management Information System (HMIS) is the only regular source of health facility wise data on maternal and child health indicators in India, updated monthly at the state, district, and the sub-district level. Overall anomalies in the HMIS data notwithstanding, HMIS provides the information close to complete population and provides the floor level of stillbirth rate and their analysis can provide meaningful inputs to policy.

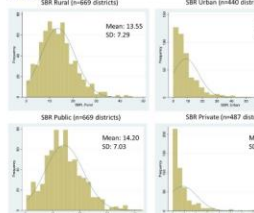
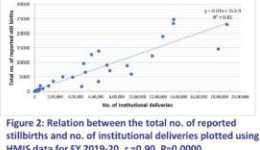
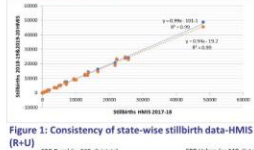
INTRODUCTION

- High rates of stillbirths and their regional variations in India hasn't received much attention and may remain unnoticed in the times of the pandemic
- We analyze the stillbirth data reported in the HMIS for three consecutive years prior to the pandemic 2017-2018, 2018-2019, 2019-2020
- The current study also aimed to explore the spatial heterogeneity of still birth rates and its correlates, across the districts of India

RESULTS

Table 1: Stillbirth rate (still birth/1000 total birth) in India (FY 2017-2020)

Financial Year	Public [A]	Private [B]	Urban [C]	Rural [D]	Total (A+B) or (C+D)
2017-2018	15.7	6.6	9.2	14.7	13.4
2018-2019	15.6	6.5	9.0	14.4	13.1
2019-2020	15.3	5.7	8.5	13.7	12.4



HMIS 2017-18	Mean	SD
SBR Rural	14.3	7.3
SBR Urban	9.9	10
SBR Public	14.7	6.9
SBR Private	10.2	13.3
HMIS 2018-19	Mean	SD
SBR Rural	13.9	7.3
SBR Urban	9.7	10.2
SBR Public	14.5	7.1
SBR Private	9.4	12.1
HMIS 2019-20	Mean	SD
SBR Rural	13.5	7.2
SBR Urban	8.6	8.8
SBR Public	14.2	7.0
SBR Private	8.6	12.2

Figure 3: Still birth rate in India across rural, urban, public, and private deliveries using HMIS data for FY 2019-20

Indicator	Difference	Lower limit (95% confidence)	Upper limit (95% confidence)	P
Public - Private	7.083	3.376	10.791	0.000*
Rural-Urban	6.493	10.172	2.815	0.000*

Table 3: LISA Moran's I Statistics showing the spatial dependence for the district level prevalence of SBR and selected correlates, 2015-16

Study variables (district level percentages)	Bi variate	
	Moran's I	P value*
Still Birth Rate	-	-
Women whose Body Mass Index (BMI) is below normal (BMI < 18.5 kg/m ²)	0.24	0.001
Pregnant women aged 15-49 years who are anaemic	0.197	0.001
Women aged 20-24 years married before age 18 years	0.16	0.164
Home delivery conducted by skilled health personnel	0.08	0.001
Mothers who had at least 4 antenatal care visits	-0.18	0.001
Institutional Delivery	-0.19	0.001
Mothers who had antenatal check-up in the first trimester	-0.19	0.001
Mothers who consumed IFA for 100 days or more than they were pregnant	-0.23	0.001
Mothers who had full antenatal care	-0.24	0.001
Births delivered by caesarean section	-0.29	0.001

METHODS

Data has been culled using python pandas to extract from HMIS portal in a desired format as required for analysis

1. Distribution of stillbirth and associated factors-

- Scatter plots are used to study consistency in reporting stillbirths as well as depicting association between stillbirths and predictor variables
- Distribution of SBR in India is depicted through histogram. Means of deliveries across facilities and across states are compared using ANOVA

2. Spatial pattern of stillbirth rate and its correlates-

- Univariate Geo-spatial techniques of Local Indicator of Spatial Association (LISA) was applied to understand the spatial distribution of stillbirth burden in India
- Selected correlates of stillbirths from the fourth round of National Family Health Survey (NFHS-4) were used to study the spatial heterogeneity of SBR using bivariate LISA

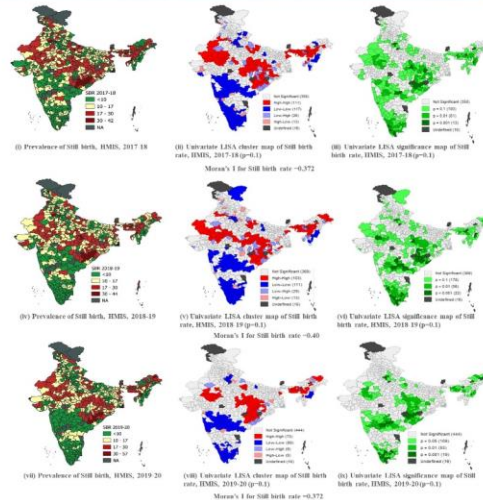


Figure 4: Univariate LISA cluster and significance map of still birth rate

FINDINGS

- The still birth data at all-India level was consistent during studied three years from 2017-18 to 2019-20, however there is a considerable difference between latest Sample Registration System (SRS) data 2018 and HMIS data of corresponding year
- Stillbirths rates were found much higher in public facilities and rural areas than in private facilities and in urban areas
- A distinct north-south divide was found to exist, with the southern states forming a contiguous belt of low SBR states and the central belt with high SBR or the hotspots -Chhattisgarh, Odisha, Madhya Pradesh and Rajasthan
- Correlates like BMI of the mother, full antenatal care, IFA supplementation and caesarean deliveries, showed relatively stronger significant spatial autocorrelation with still birth rates highlighting the need for targeted interventions in the belt of high stillbirth rate

Recommendation

- Proper training of community health and nutrition workers ('ASHAs' and 'Anganwadi workers') on early identification of high-risk pregnancies and awareness generation on compulsory full ANC visits would facilitate to control the still birth issue.
- Ensuring all the antenatal check up is essential to reduce the still birth in India especially in the hotspot clusters. Clusters having poor compliance to antenatal care and high still birth were in the same cluster.
- Bivariate LISA mapping technique will help to make targeted action plan and focused intervention with key messages for the corresponding clusters.

Contact Details

