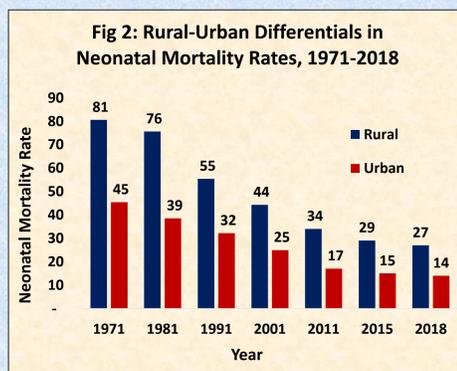
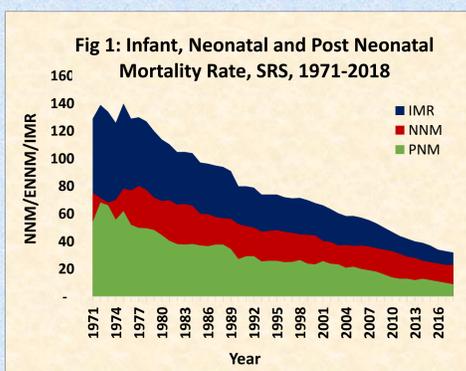


### Abstract

The apprehension of the present study is to analyze the impact of postnatal care on neonatal deaths in India. For the underlined research, information on 259,627 live births was analyzed using the National Family Health Survey (NFHS-4) and Sample Registration System (SRS) for trends and patterns of neonatal mortality rate from 1971 to 2018 major states in India. The findings from the Logistic regression suggest that the child who had gone for a check-up after delivery had a 28% lower risk of neonatal mortality. The multivariate decomposition results reveal that 10.29% (due to endowment) and 89.71% (due to coefficients) of the overall change in neonatal mortality between children who had gone for a postnatal check-up or who had not gone for a postnatal check-up. Focus on postnatal check-up to reduce the gap among states and to achieve the SDG goals.

### Introduction

- The time of childbirth and the immediate postpartum period is extremely critical for both the new born and the mother because the highest risk of death occurs within this period.
- Globally 2.4 million children died in the first month of life in 2019.



- In 2019, neonatal mortality rate for India was 21.7 deaths per thousand live births, which accounts for 14% of global new born deaths.
- To reduce maternal and new born deaths, postnatal care is recommended as one of the major interventions globally.

### Rationale for the study

- Over the three decades, the neonatal mortality rate in India has been reduced to more than half.
- But the current figure of neonatal mortality is alarmingly high.
- Stagnation in neonatal mortality reduction and huge disparity across regions is a major concern at present.
- Despite the promotion of postnatal care is highly recommended for the reduction of maternal and new born deaths worldwide, only one-fourth of new-borns received a postnatal check within 2 days of birth.

### Objective of the study

The present study encompasses the following specific objectives.

- To examine the levels, trends, pattern and differentials in neonatal deaths in states of India.
- To investigate the impact of programme related factors and in particular post-natal check-ups on neonatal deaths.

### Methods and Materials

#### 1<sup>st</sup> objective

- Sample Registration System (SRS), 1971-2018

#### 2<sup>nd</sup> objective

- National Family Health Survey (NFHS-4), 2015-16

### Statistical Analysis

- At the univariate level, descriptive analysis was done.
- In a multivariate analysis, the binary logistic regression model is used. For identifying important factors affecting neonatal mortality, a host of possible covariates were considered in the logistic regression model. The model using in the analysis as the following equation:

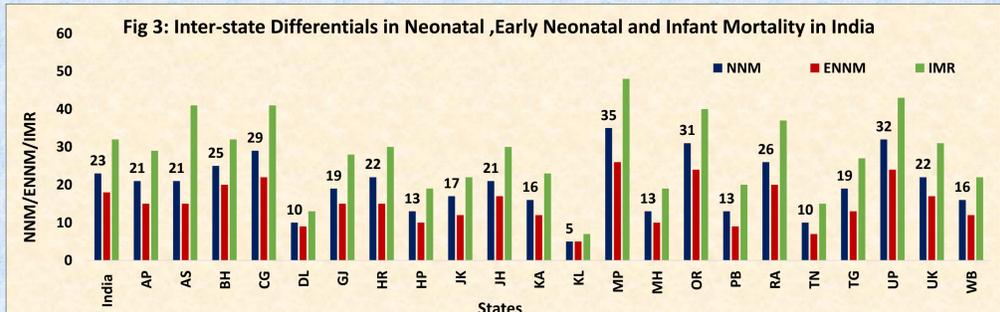
$$\ln\left(\frac{p}{1-p}\right) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k$$

where  $\ln\left(\frac{p}{1-p}\right)$  is the log of odds of Neonatal Mortality,  $\beta$ 's are the parameter coefficients, and  $x$ 's are the predictor variable. The multivariable decomposition can be represented by

$$Y_A - Y_B = F(X_A \beta_A) - F(X_B \beta_B) = \underbrace{[F(X_A \beta_A) - F(X_B \beta_A)]}_E + \underbrace{[F(X_B \beta_A) - F(X_B \beta_B)]}_C$$

Where,  $Y_A - Y_B$  represents the difference in mean level outcome between use of postnatal care.  $F$  follows a logistic function. Component  $E$  refers to the difference attributable to endowment change, usually called the explained component. Component  $C$  refers to the difference attributable to coefficients (behavioural) change, usually called the unexplained component.

### Results



Note: NNM- Neonatal Mortality Rate, ENNM- Early Neonatal Mortality Rate, IMR-Infant Mortality Rate, AP-Andhra Pradesh, AS-Assam, BH-Bihar, CG-Chhattisgarh, DL-Delhi, GJ-Gujarat, HR-Haryana, HP-Himachal Pradesh, JK-Jammu & Kashmir, JH-Jharkhand, KA-Karnataka, KL-Kerala, MP- Madhya Pradesh, MH-Maharashtra, OR-Odisha, PB-Punjab, RJ-Rajasthan, TN-Tamil Nadu, TG-Telangana, UP-Uttar Pradesh, UK-Uttarakhand, WB-West Bengal

Fig 4: Logistic Regression Results for Neonatal mortality by Program related, Household level, Mother specific and Child specific variables in India, 2015-2016

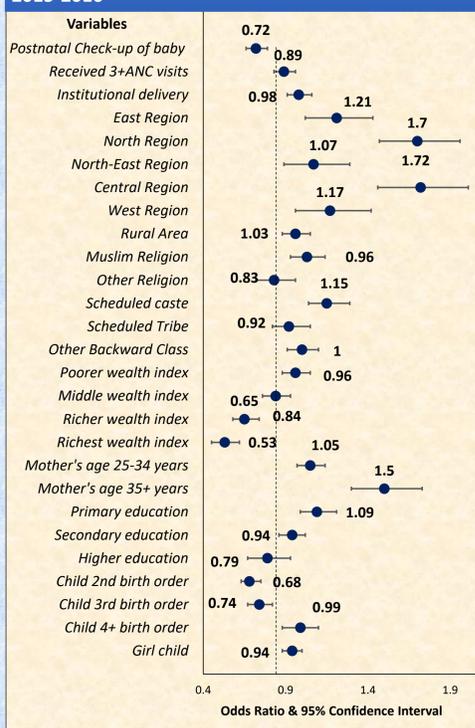
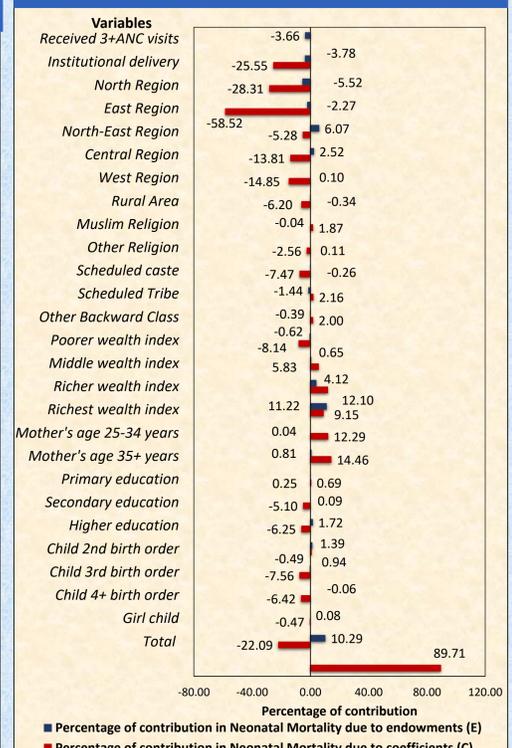


Fig 5: Multivariate decomposition results of the use of postnatal check-up gap in Neonatal mortality in India, 2015-16



### Conclusion

- More than two-thirds (72%) of infant deaths occur within the first month of life.
- The rate of decrement in IMR is higher than that of NNM and PNM.
- Rural areas have shown a greater decline in NMR than in urban areas.
- If a woman did not go for a check-up of her baby after delivery, then neonatal deaths are higher among them as compared to those babies who received check-up after delivery.
- It very much important to focus on postnatal care to reduce the variation among states and to achieve the SDG goals.