

Groping in the Dark for Causes of Infant Death in Northeast India

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Abstract

Background: Contextual factors like household environment, mother's background and biological factors have deterrent effect in the occurrence of infant death. Birth complication mainly befalls to poor household and unhealthy mother due to various causes. This paper will examine the association and effect of selected household, women and child covariates on neonatal death of infant death in northeast India.

Objective: This study will try to access the causes of infant mortality in northeast India and also will access the contribution of neonatal death in infant death.

Data and Method: Data from the fourth District Level Household and Facility Survey 2015 (DLHS 4) also provides information on cause of death and will be used for analyse using bivariate and multivariate techniques along with graphical representation of the consequences.

Results: Finding shows that besides low registration system in the region, only 27 percent of infant deaths are registered according to DLHS 4. It is also found that the proportion of cause of death are much more detailed in DLHS 4 than in Medical Certification of Causes of Death (MCCD) 2013. Birth related causes of death and infants to younger mother have deterrent significant effect on infant death in neonatal period and are found significant at $p < 0.01$. The proportion of infant death in neonatal period is more among boys and is also significant at $p < 0.05$.

Conclusion: The policy recommendation emerging from this study is to promote and practice preventive means to reduce birth complication including injuries and secondly to enhance birth and death registration to ensure infant survival.

Keywords: Infant Death; Northeast India; Medical Certification of Causes of Death (MCCD)

Introduction

Infant mortality rate in India has decline from 80 to 50 per 1000 live births during 1990 to 2009 and further declines to 40 in 2013 (RGI, 2014) [1] but rural-urban gap of 44 for rural and 27 for urban is substantial. Over the year considerable decline in IMR in the northeast India was also notice as evident that it was 88.7 in Assam, 75.8 in Tripura, 64.2 in Meghalaya, and the least is 14.6 in Mizoram during 1992-93 (NFHS-1) (IIPS, 1995) [2]. IMR in the first states slides down to 66.1, 51.5 and 44.6 respectively while it has shoot up to 34.1 in the case of Mizoram in 2005-06 (NFHS-3) (IIPS, 2007) [3]. There is further improvement in IMR for some of the states in northeast India in 2016 (NFHS-4) (IIPS, 2014) [4], for instance, 48 in Assam, 27 in Tripura and 30 in Meghalaya. However the pace of decline in neonatal mortality rate is still slow in many of the states in northeast India as compared to that of the decline in the case of IMR. During 1992-93 (NFHS-1) to 2005-06 (NFHS-3) neonatal mortality rate in Assam declines from 50.9 to 45.5, in Tripura from 43.6 to 33.1, in Meghalaya

from 37.8 to 23.6 but it rather increases from 8.3 to 16.3 in Mizoram, 10 to 19.8 in Nagaland and 17.5 to 34 in Arunachal Pradesh. As infant mortality is largely concentrated during the neonatal period, 70 percent in rural and 66 percent in urban areas (RGI, 2013) [5] to enhance further reduction in the risk of infant death saving life in neonatal period is very crucial. This corroborated from the highlight of Million Death Study (2010) in India that 52 per cent of deaths of children in 0 - 59 month occurred in the first month of life and important causes of these deaths are due to premature and low birth weight, neonatal infection and birth asphyxia and birth trauma (Million Death Study Collaborators, 2011) [6]. MDS also reported that as on 2001-03 in northeast India 0.09 million children aged 0 - 4 died and pneumonia accounts for 16 percent of these child deaths, prematurity and low birth weight 10 percent, birth asphyxia and birth trauma 8 percent, neonatal infection 6 percent, diarrhoeal diseases 16 percent, other infectious diseases 19 percent and other causes constitute 22 percent. Thereafter no study has reported causes of death pertaining to northeast India. Thus the scanty and unreliable data on causes of death has left with no option but draw intervention programmes to avert infant death by groping in the dark for causes of death particularly in the context of northeast India.

Due to limited coverage infant and neonatal mortality rates for states in northeast India except for Assam are not available in the SRS Bulletin. Data from Civil Registration System (CRS) also fails to provide adequate data due to poor coverage though it has marginally improved over time even in the case of states in northeast India (RGIa, 2013) [7]. The coverage of death registration for states in northeast India varies from 21 percent in Arunachal Pradesh to complete registration in Mizoram. Only the periodic large scale surveys like National Family Health Survey (NFHS) has become the prime source of neonatal and infant mortality rates for the states in northeast India. But NFHS is not intended to provide data on causes of death. Medical Certification of Cause of Death (MCCD) (RGIb, 2013) [8] under the auspices of Registrar General of India (RGI) is another source of data on causes of death by age and sex at the state level including those of northeast India but the suffers from selectivity as the coverage is confined to registered deaths and to urban areas. The inadequacy of mortality data in India more so for smaller states in northeast India has been mentioned in many literature [9]. In order to prepare region specific interventions for preventing infant deaths with emphasis on neonatal period appraisal of a general pattern of causes of death during this crucial first year of life is important. For such assessment even causes of death data with some level of under coverage but representative of the region is expected to suffice the purpose. Keeping this in view this paper seek to explore alternative source of data on causes of infant death from representative household survey. The fourth round District Level Household and Facility Survey (DLHS-4) collect data on death of household members with causes of death from representative sample of households from 7 states of northeast India (excluding Assam). The objectives of this paper are to assess the pattern of causes of infant death in northeast India comparing with that of MCCD and secondly to assess the extent of contribution of neonatal death in infant death controlling for potential confounders.

Data and Methods

The data used in this study come from the fourth round of District Level Household and Facility Survey (DLHS-4, 2012-13) for states in northeast India with the exception of Assam. This was a survey of 60228 representative households of which 76.2 percent were rural households and adopted multi-stage stratified sampling design. The number of households representing a district in DLHS-4 in the case of states in northeast India is on the average 1000. Information on death of household members since January 1, 2008 till the date of survey were collected including causes of death by probing or verification of death certificates. Age at death and sex of deceased members were also collected. A total of 443 reported infant deaths with complete details is the basis of analysis. For comparative assessment of pattern of causes of infant death reported in DLHS-4 the MCCD data for northeast India was also utilized.

The covariates included in the assessment of contribution of neonatal death on infant death were based review of available literature relevant in the context of northeast India. Place of residence matters on many accounts when it comes to infant mortality. First, awareness about child healthcare and accessibility to health facility are more among urban residents as compared to their rural counterparts [10]. Secondly, basic amenities such as access to safe drinking water are better in urban areas [11]. It is for this consideration place of residence is included as a potential covariate in the analysis. Ladusingh and Holendro (2005) have found in the case of northeast India that the risk

of child mortality is less among household with grandmother as compared with the counterparts [12]. Among the indigenous people the indigenous knowledge system of senior women plays an important role in dealing with the care and wellbeing of younger women and children [13]. In underdeveloped regions education of the mother of the index child have been found demonstrated to have significant role in preventing infant mortality [12,14-16]. This is because in isolated communities of indigenous such as the northeast India the head of households makes important decision of the household and woman in northeast India have greater freedom due to their higher social status. There is no doubt that a conducive supporting household environment both in terms of basic amenities and capacity to pay for health-care are vital for protecting children from incidence of morbidities and malnutrition and saving infant from death and this has been widely documented [17,18]. In the absence of direct information on household income household’s supporting environment is often accounted by housing conditions as a proxy. Nutritional status of mother has detrimental effect on child such as low birth weight [19] which in turn is high risk factor of neonatal mortality [20]. Body mass index (BMI) of mother is incorporated in the analysis as important covariate.

Unlike other regions of India where social son preference is strong [21], in northeast India such preferential taste is marginal thus sex differential in childhood mortality can be subjected to test under such circumstances. Thus inclusion of sex of the child can capture ‘place’ effect [12]. In the analysis place of death of the index child has been considered as a proxy for utilization of health facility for healthcare. It is documented that delivery of pregnancy in health facility significantly increases the chance of survival of the new-born babies.

Diagrammatic presentation, descriptive statistics and bivariate analysis are used to highlight differential in the likelihood of neonatal death by selected covariates mentioned in the preceding paragraphs. Logistic regression is used for multivariate analysis of odds ratios of neonatal deaths adjusting for potential covariates mentioned above. The logistic regression model is of the form

$$\ln \left(\frac{P_i}{1 - P_i} \right) = \beta_0 + \sum \beta_i x_i + \varepsilon_i$$

where $P_i = \text{Prob. } (y_i=1)$, y_i is coded as 1 if the i^{th} infant death is in neonatal period, otherwise it is 0 and β_0, β_i are constant and coefficients of covariates $x_i, i=1,2,\dots$

Results

Death registration particularly of infant and children is far from satisfactory and it is very poor in the case of northeast India. In DLHS-4 (2012-13) number of infant deaths reported by the households is 443 and just 27.8 percent of it were reported to register. Gender differential in risk of premature infant death and vulnerability to poor housing are shown in figures 1 and 2 in terms of quartiles of age (in months) at the time death. The median age death of boys is at one month as against two months for girls, clearly suggesting that the risk of infant death in neonatal period is higher among boys than among girls, partly due to biological advantage of girls. It is also evident that infants are also vulnerable to housing conditions as the median age at of infants staying in kaccha (poor) and other (very poor) housing conditions is one month as compared to the median age at death of two months for infants staying in pucca (good) housing conditions. This reflect the fact that basic amenities for toilet, drainage, drinking water and ventilation which support infant survival are provision in good housing conditions.



Figure 1: Age at death (in months) by sex.

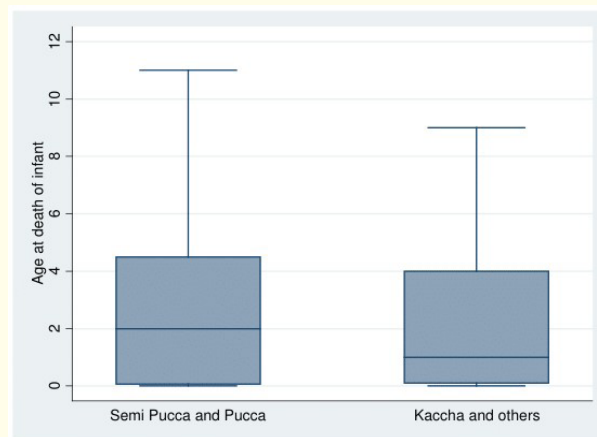


Figure 2: Age at death (in months) by housing condition.

Table 1 shows the comparison of the proportional share of infant death by causes reported in DLHS-4 with that of MCCD (2013) for northeast India. Causes of infant deaths are reported in much more details in DLHS-4 but in the published MCCD report [8] most causes are club together under certain conditions originating in perinatal period, making up 77 percent of all causes of death. On the other hand, in the case of DLHS-4 it can be noted that infant deaths due to birth related causes- asphyxia, birth injuries, congenital/birth defects, convulsions soon after birth, preterm/low birth weight baby not thriving and bleeding from umbilicus and elsewhere respectively accounts for 1.22, 4.80, 5.49, 1.74, 2.4 and 0.66 percent of all causes of infant death. The other causes of infant death are 14.42 percent due to fever related causes, 11.30 percent from respiratory infection and 4.23 percent from diarrhoea/dysentery. At the same time in DLHS-4 as many as 50.95 percent of infant deaths are due to other causes. Deaths due to birth related causes is marginally higher among the boys as compared to that among the girls but deaths due to respiratory infection is almost double among the girls than among the boys.

Causes of registered infant deaths in MCCD (2013)				Causes of infant deaths in DLHS 4 (2012-13)			
	Boy	Girl	Total		Boy	Girl	Total
Certain conditions originating in the perinatal period	77.74	76.2	77.09	Asphyxia	1.22	1.22	1.22
Certain infectious and parasitic diseases	5.70	5.81	5.75	Birth injuries	4.92	4.66	4.80
Congenital malformations, deformations and chromosomal abnormalities	2.10	2.68	2.34	Bleeding from umbilicus and elsewhere	0.78	0.52	0.66
Diseases of blood and blood forming organs and certain disorders involving the immune mechanism	0.36	0.41	0.38	Congenital/ birth defects	5.77	5.17	5.49
Diseases of the circulatory system	3.28	3.45	3.35	Convulsions soon after birth	1.67	1.81	1.74
Diseases of the digestive system	0.65	0.39	0.54	Diarrhoea/dysentery	5.11	3.24	4.23
Diseases of the eye and adnexa	0.02	0.00	0.01	Fever with convulsion	2.89	4.36	3.58
Diseases of the genitourinary system	0.46	0.57	0.5	Fever with jaundice	7.60	7.73	7.66
Diseases of the musculoskeletal system and connective tissue	0.02	0.00	0.01	Fever with rash	3.06	3.31	3.18
Diseases of the nervous system	2.27	2.60	2.41	Infections	0.00	0.41	0.19
Diseases of the respiratory system	3.49	3.73	3.59	Jaundice	2.83	1.07	2.00
Endocrine, nutritional and metabolic diseases	0.36	0.59	0.46	Preterm/ low birth weight baby not thriving	2.40	3.69	3.01
Injury, poisoning and certain other consequences of external causes	0.55	0.54	0.55	Respiratory infection	7.84	15.22	11.30
Mental and behavioral disorders	0.00	0.05	0.02	Others	53.92	47.59	50.95
Neoplasms	0.04	0.13	0.08				
Symptoms, signs and abnormal clinical and laboratory findings N.E.C.	2.97	2.86	2.92				
Total infant death registered	57.44	42.56	9134	Total infant deaths	53.09	46.91	441

Table 1: Causes of infant deaths in northeast India by sex from MCCD and DLHS-4.

As the sample size is small in this study for convenience we categorised the causes of infant deaths into three broad groups, namely, birth related causes (16.48 percent), infection and deficiencies (32.96 percent) and others (50.56 percent). The birth related causes includes asphyxia, birth injuries, convulsions soon after birth, bleeding from umbilicus and elsewhere, congenital/l birth defects and preterm/ low birth weight baby not thriving. Infection and deficiencies consists of infections jaundice, respiratory infection, diarrhoea/ dysentery, fever with rash or convulsion or jaundice and the others group all other causes not included in the aforesaid two causes of infant death.

Table 2 shows the association between incidence of infant deaths during neonatal and post neonatal periods and contextual factors, namely, place of residence, housing condition and infant with grandmother, maternal factors, that is, age, literacy status and nutritional status, sex of the child, cause of death and place of death.

	Neonatal	Post neonatal	Total deaths (N)	
Infant deaths in northeast India	38.8	61.2	443	
Place of residence				
Rural	40.0	60.0	345	0.905
Urban	34.7	65.3	98	
Type of house				
Semi pucca and pucca	36.8	63.2	204	0.677
Kaccha and others	40.6	59.4	239	
Infant with grandmother				
No	37.8	62.2	336	0.620
Yes	42.1	57.9	107	
Age of mother (in years)				
<=20	67.7	32.3	31	14.337***
21 - 30	40.2	59.8	224	
31 - 40	32.8	67.2	134	
>=41	31.5	68.5	54	
Education of mother				
Illiterate	37.7	62.3	106	0.117
Primary and lower	38.6	61.4	140	
Middle	39.3	60.7	112	
Secondary and above	40.0	60.0	85	
BMI of mother				
Underweight	38.0	62.0	50	0.05
Normal	37.9	62.1	277	
Overweight	39.6	60.4	48	
Sex of infant died				
Boy	43.5	56.5	239	4.804**
Girl	33.3	66.7	204	
Cause of death				
Birth related	79.5	20.6	73	88.135***
Infection and deficiencies	14.4	85.6	146	
Others	41.5	58.5	224	
Death in health facility				
No	36.1	63.9	288	2.555
Yes	43.9	56.1	155	

Table 2: Percentage distribution of post neonatal and neonatal by background characteristic with calculated chi squares in northeast India.

NB: Level of significance: - *: $p < 0.1$; **: $p < 0.05$; ***: $p < 0.01$

A sizeable proportion of infant deaths are during the neonatal period both in rural and urban areas, 40 and 34.7 percent respectively. However, the association between place of residence and infant death is not statistically significant. Similarly, the associations of housing conditions and presence of grandmother in household with infant deaths are also not statistically significant. High risk of infant death during neonatal is noted for very young mothers below 20 years and 67.7 percent of infant deaths of children born to them are during the neonatal period. This is largely because of physiological immaturity of younger women to be fit for childbearing.

Though the incidence of infant deaths during the neonatal period tends to decline with advancing age of women for all women above 20 years the proportion of infant deaths during the neonatal period ranges from 31.5 to 40.2 percent. The association between age of mothers and infant deaths is found to be statistically significant at $P < 0.01$. Contrary to available literature the association between educational attainment and nutritional status of mother and infant mortality are found not to be statistically significant in the case of northeast India. The proportion of infant death during the neonatal period among the boys is 43.5 percent and that among the girls is 33.5 percent thus suggesting vulnerability of male child to neonatal death. The gender differential in incidence of infant death is statistically significant at $P < 0.05$. Birth related causes of death including asphyxia, birth injuries, congenital/birth defects, convulsions soon after

birth, preterm/low birth weight baby not thriving and bleeding are accountable for 79.5 percent of infant deaths during the neonatal period, while 14.4 percent among infection and deficiencies and 41.5 percent among other causes. The causes of infant death and deaths during the neonatal period is statistically significant at $P < 0.01$. Infant death can be averted by providing proper healthcare for common and life threatening diseases and to capture healthcare utilization of infants' place of death is cross tabulated with infant deaths during the neonatal and post-neonatal periods. However, in the case of northeast India there is no significant association between place of death and infant deaths.

To comprehend the odds ratios of infant death in neonatal period controlling for potential correlates are investigated considering three versions of logistic regression. In Model 1 only the causes of infant death are examined, while in Model 2 the influence of household context, maternal and child factors are investigated and in Model 3 all factors including causes of death, household context, maternal and child related factors are considered in order to find out how the odds ratios are affected when potential covariates are adjusted. The results of Model 1 to Model 3 are shown in table 3. From the result of Model 1 when no other factors are controlled and the odds of infant death in neonatal period from causes related to infection and deficiencies is 95.6 percent lower in comparison to that due to birth related cause whereas the likelihood of infant death in neonatal period from other causes is 80.8 percent lower in comparison to that of birth related causes. The low odds of infant deaths in neonatal period from infection and deficiencies and other cause in comparison to birth related causes are statistically significant at $P < 0.01$. From the results of Model 2 it is noted that when housing conditions, maternal and child factors are controlled the odds of infant death in neonatal is 19 percent lower for infants in urban areas.

	Model 1			Model 2			Model 3		
	Odds Ratio	95% Conf. Interval		Odds Ratio	95% Conf. Interval		Odds Ratio	95% Conf. Interval	
Constant	3.865***	2.163	6.907	4.520**	1.322	15.464	9.820***	2.319	41.592
Cause of death									
Birth related ⁰									
Infection and deficiencies	0.044***	0.021	0.092				0.045***	0.021	0.097
Others	0.192***	0.101	0.364				0.204***	0.106	0.393
Place of residence									
Rural ⁰									
Urban				0.813	0.481	1.375	0.841	0.466	1.519
Type of house									
Semi pucca and pucca ⁰									
Kaccha and others				1.077	0.688	1.687	1.207	0.737	1.976
Infant with grandmother									
No ⁰									
Yes				0.828	0.492	1.396	0.939	0.527	1.672
Age of mother (in years)									
<=20 ⁰									
21-30				0.221***	0.093	0.523	0.352**	0.140	0.888
31-40				0.152***	0.062	0.375	0.265***	0.100	0.707
>=41				0.150***	0.053	0.424	0.270**	0.087	0.844
Education of mother									
Illiterate ⁰									
Primary and lower				0.970	0.539	1.746	0.818	0.414	1.616
Middle				0.831	0.431	1.602	0.865	0.411	1.819
Secondary and above				1.058	0.529	2.118	0.946	0.433	2.070
BMI of mother									
Underweight ⁰									
Normal				1.167	0.587	2.323	1.588	0.708	3.563
Overweight				1.867	0.752	4.633	2.946**	1.011	8.589
Sex of infant died									
Boy ⁰									
Girl				0.655**	0.434	0.989	0.661*	0.419	1.043
Death in health facility									
No ⁰									
Yes				0.674*	0.429	1.058	0.856	0.515	1.422
Number of observation	441			441			441		
Wald chi ²	68.2 (2)			25.11 (13)			74.1 (15)		
Prob > chi ²	0.000			0.022			0.000		
Pseudo R ²	0.158			0.049			0.187		
Log pseudolikelihood	-238.68755			-269.80776			-230.476		

Table 3: Odds ratios of infant death in neonatal period in northeast India

NB: Level of significance: *, $p < 0.1$; **, $p < 0.05$; ***, $p < 0.01$; Reference category: 0

In comparison to those in rural areas but this is not statistically significant. As regards the effect of housing condition controlling for other factors the odds of infant death in neonatal period for those in kaccha (poor) and others (very poor) housing condition is 7.7 percent higher than that of the odds of those in pucca (good) housing condition. However, it is not statistically significant. In the context of northeast India role of grandmother is immense and hence is evident from the fact that the odds of infant death at neonatal period is 17.2 percent less among deaths with grandmother in household than those with no grandmother. It is found statistically not significant.

Even after controlling other factors age of the mother is found statistically significant at $p < 0.01$ and as the age of mother increases the likelihood of neonatal death decreases. As compared with women age 20 or less women in age 21 to 30, 31 to 40 and 41 and more year old mother are 77.9, 84.8 and 85 percent less likely to have infant death at neonatal stage respectively.

Education of mother plays important role in terms healthcare utilization and upbringing the child. The result shows that the odds of infant death in neonatal period is more among illiterate women, literate mother with primary and lower and middle standard are having 3 and 16.9 percent less odds of infant death in neonatal period but mothers with secondary and above standard are having 5.8 percent more chances of having infant death in neonatal period but there is no statistically significant correlation. Nutritional status of the mother determine the pregnancy outcomes and health of new born baby. The odds of infant death at neonatal period is 16.7 percent more in Normal and 86.7 percent more in overweight in contrast with the underweight mother but it is not found statistically significant. The odds of infant death in neonatal period is 34.5 percent less in girls than boys. The low odds of infant deaths in neonatal period among girls in comparison to boys is significant at $P < 0.05$.

As a proxy for seeking treatment for morbidities place of death of the child is considered and found that odds of infant death in neonatal period for infants who die at home is 28 percent lower than those who died in health facility but it is not statistically significant. This is mostly because infant are usually taken for treatment to health facility in seriously sick cases. The results of Model 3 show that when all the contextual housing conditions, maternal, causes of death and child factors are controlled the odds of infant death in neonatal due to infectious and deficiencies and other causes are 95.5 percent and 79.6 percent lower as compared to birth related causes. These differences are found to be statistically significant at $p < 0.01$. The findings from Model 3 are similar to that of Model 2 and place of residence, housing with grandmother are to be found statistically insignificant. The direction of influence of age of the mother is also found similar result with that of Model 2, more specifically the odds of infant death in neonatal period for infants of women age 21 - 30, 31 - 40, 41 and above are 64.8 73.5 and 73 percent lower respectively as compared with infants of younger mother 20 years or less. These results are statistically significant at $p < 0.05$, $P < 0.01$ and $P < 0.05$ respectively. Literacy of mother is not found to have significant association with infant death in neonatal period after controlling all contextual and other factors. The odds of infant death in neonatal period born to overweight mothers having body mass index (BMI) of 25 kg/m^2 is 3 times higher than that of infants of underweight (BMI below 18.5 kg/m^2) and is significant at $p < 0.05$. Similarly, the odds of infant death in neonatal period is 33.9 percent lower for girls than for boys and is found statistically significant at $p < 0.1$. As in Model 2 infant death in neonatal period and place of death though the odds of neonatal death is 14.4 percent lower among infant death that took place in health facility.

Based on the full Model 3 which adjusts for cause of infant death, housing condition, maternal and child factors the predicted probability of infant death during the neonatal period by causes of neonatal death are shown in figure 3. It is noted that the probability of neonatal death from birth related causes is very with a median value of 0.8 and ranges from 0.61 to 0.98, while the median value of probability of death due to others causes is 0.42 and ranges from 0.2 to 0.7 and the median of predicted probability of death in neonatal period from infection and deficiencies causes is 0.14 and ranges from 0.05 to 0.29.

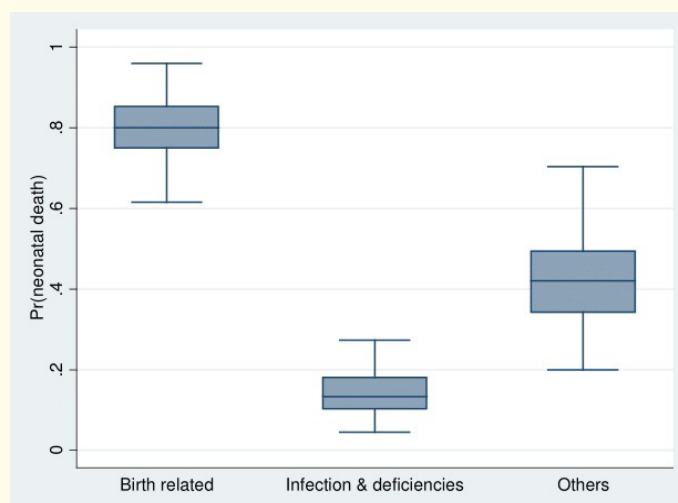


Figure 3: Predicted probability of neonatal death.

Discussion and Conclusion

The findings from this study has shown that the cause of death of infant in neonatal period is mostly related with birth and is found statistically significant at $p < 0.01$. The data on cause of death in northeast India and the country as a whole and this is a hindrance to find the underlying cause of death. The gap is being fill by the new data in the fourth round of District Level Household and Facility Survey (DLHS-4) for representative sample of northeast India. The finding of this study portray the deterrent covariates of infant mortality especially in neonatal period. It is found that age at death for boys is lower as compared to that of girls. Similarly death at early age are also found in infants staying in kachha (poor) and others (very poor) housing conditions. Though there is no statistical significant difference in the likelihood of death of infant by residence. Death of infant in post neonatal period is more among family without grandmother in the household. The relationship between age of the mother and time of infant death is found to be statistically significant at $p < 0.01$. Younger the age of mother the higher is the risk of infant death in neonatal period. There is no significant difference between education of mother and infant death. Proportion of infant death in neonatal period is higher among the boys than among the girls and it is statistically significant at $p < 0.05$. The adjusted likelihood of infant death in neonatal period have statistically significant relationship with cause of death, age of mother, nutritional status of the mother, sex of the infant. Therefore intervention focusing on the aforesaid covariates will give a fruitful outcomes and will help in reducing infant mortality especially in neonatal period in northeast India. Assessment using predicted probability has clearly shown that the chance of dying of infant in neonatal period is high from birth related causes.

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