DOES Reproductive Health Care Services Reduce the Risk of Neonatal Death among Hindus, a Major Religious Minority of Bangladesh?

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Abstract: Reproductive health care service utilization and its effect on neonatal mortality of religious minority has been examined in this paper using recent pregnancy history data of the Matlab health and demographic surveillance system of ICDDR, B. Since 1977, ICDDR, B has introduced an intensive reproductive health care services in half of the area known as "ICDDR, B area" and the rest half as the "Govt. area". Analyses of the trends in neonatal mortality and results of the Multivariate analysis (controlling biosocial and socio-cultural factors) confirm that neonatal mortality is not different between two religious groups (Hindus and Muslims) in the ICDDR,B area where there were health interventions but significantly higher among Hindus in the Govt. area where there were no health intervention. Other factors elevating the risk of neonatal death are breech presentation of baby, baby not cried after delivery and young woman age, and that decreasing risk is women's education.

Introduction:

Understanding the socio- economic and cultural dimension of mortality differentials has been a major challenge in mortality research especially in the context of achieving Millennium Development Goals (MDG) where major emphasis has been given on the reduction of underfive and maternal mortality in the developing countries.   In previous decades, research has been directed towards understanding the causal link between culture, religion and demographic aspects of the community. In the mid eighties, analysing macro level mortality data Caldwell et al. (1985) concluded that the high mortality among the Muslim nations is not related to their socialization in Islam but to the deeply rooted culture of patriarchy and its association with women's position and access to education. Earlier Cain et al. (1979) links Islam with lower women status and demand for additional children among women of rural Bangladesh. In recent times there is a resurging quest for understanding demographic phenomena from religious and ethnic perspectives with majority and minority Muslim and Non-Muslim issues related with fertility (Basu 1996; Jeffery and Jeffery 1997; Knodel et al. 1999; Morgan et al. 2002; Dharmalingam and Morgan 2004) and suggests that fertility differential between Muslims and Hindus in India is a difference in "region, residence, class and schooling". In conformity with Basu (1996) and Jeffery and Jeffery (1997), Knodel et al. (1999) concludes that   fertility difference between Muslims and Non-Muslims in the Thai society lies in a complex relationship between "religion, ethnicity, cultural identity and political setting". In addition, studies were carried out where Muslims were either a religious or a ethnic minority (Caldwell 1986; Courbage, 1992; Knodel et al. 1999, Jeffery and Jeffery 1997; Dharmalingam and Morgan 2004). A very few studies have under taken where there was a reverse situation i.e. where Muslims were the majority.

More importantly, studies on the other demographic issues i.e. mortality especially neonatal and infant mortality lack due attention. Surveys and vital registration data reveal that infant and child mortality among Hindus and Muslim both in India and in Bangladesh is not the same rather high among Hindus in both countries (Sahu, 2006, unpublished HDSS data). It is noted that despite living together for thousand years and share a common institutional context the Hindus and the Muslim ethnic groups in

Bangladesh maintain a distinct cultural entity (Islam et al. 1989). It is not adequately known whether this distinct cultural entity of the two communities has any impact on the differential motility pattern of the very young infant i.e. neonates and whether this mortality differential can be mitigated through programmatic effort.

In this context, Matlab health and demographic surveillance area (HDSS) of Bangladesh is an appropriate site examine the issues where Muslims were the majority with a 10 percent of the population believe in Hinduism. This proportion of the Hindus represents the national population composition. Hindus and Muslims in this rural area living years together cordially sharing a common institutional context but maintain a very distinct cultural rites and rituals, custom and habit especially the one that is related with birth and delivery practices. But Matlab HDSS has an intensive reproductive health intervention programme since 1977 where community workers approach each woman at home with reproductive health care services like prenatal and antenatal cares, distribution of vitamins and iron and folic acid and immunization against tetanus irrespective of women's religious belief.   Because of the programme, distribution of iron and vitamins is universal and tetanus immunization shoot up to 99 percent. Prenatal care service utilization in the ICDDR, B area is very high (70 percent) compared to Govt. area where it is only 16 percent. In such a situation, the objectives of the present study is to examine the trends in neonatal mortality over the last 27 years between the two religious communities utilizing Matlab longitudinal data and examine the correlates of neonatal mortality among the women of minority group (Hindus) compared with the women of the majority group (Muslim) controlling the utilizing pattern of the reproductive health care service by these two religious groups.

Data and Methodology: The paper utilizes pregnancy history data of 1977-2003 from the Health and demographic surveillance system (HDSS), Matlab, a longitudinal data collection system of International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B). Since 1966, ICDDR, B has been maintaining a health and demographic surveillance system (HDSS) in selected villages of Matlab Thana. HDSS comprises periodic censuses of the population along with a continuous registration of births, deaths, migrations, and marital events. The population covered in HDSS is more than 220,000 during 2003. Each individual has a unique identification number in HDSS by

which demographic and socio-economic information of a person can be linked. There were socio-economic and population censuses in 1974, 1982, 1996 and 2005.

Since 1977, ICDDR, B has interjected various carefully designed maternal and child health and family planning (MCH-FP) interventions in about half of the HDSS area. The area where interventions were given is known as ICDDR, B area" and the rest is known as "Govt. area". The later area receives reproductive health services from the government's regular programme. Reproductive health service in the ICDDR, B area includes tetanus immunization to all pregnant women, antenatal care and screening and referral of high risk women, training traditional birth attendant and posting a trained lady family planning visitor (LFPV) in the sub-centre for help during delivery if needed, besides the door to door delivery of family planning services. However, since 2001, doorstep delivery of the family planning service has been shift to fixed site clinic.

Matlab, the field research site of ICDDR,B is situated 45 km southeast of Dhaka, the capital of Bangladesh. About 85 percent of the population in this area is Muslim, and the rests are Hindus. The society is traditional and religiously conservative. The economy is subsistence, with agriculture and fishing as dominant sources of income. There has not been significant economic improvement in this area over the last decade although fertility and child mortality have declined substantially. In 1982, 55 percent of males and 27 percent of females aged 15 years or more had some form of formal education. In 1996, a major improvement in the level of female education took place. Matlab is an isolated area and is largely inaccessible, except by river transportation. This situation has undergone some change. The   contraceptive prevalence rate during the study period in the ICDDR, B area rises to 69 per hundred couples. Total fertility rate reduced to 3 children per women. Infant mortality was 48 per 1000 birth while neonatal mortality was reported as 34 per 1000 live birth. In the Govt service area**,** contraceptive prevalence rate during the study period was 47 per hundred couples. Total fertility rate reduced to 3.2 children per women. Infant mortality was 54 per 1000 birth while neonatal mortality was reported as 36.4 per 1000 live birth.

A trend in neonatal mortality between two religious groups by area was calculated basing pregnancy history data of 1977-2003. For multivariate analyses pregnancy

history data of 2002-2003 were followed for 29 days to ascertain the survival status of the newly born. Information on reproductive health care utilization was registered in the pregnancy history files. Relevant socio-demographic and economic information of the communities were extracted from the HDSS database. About 11452 live births were reported during 2002-2003. Of them 386 were reported as neonatal death. Reproductive health cares were recorded in the pregnancy history data. Reproductive health care during pregnancy includes prenatal care during pregnancy, immunization against tetanus, and utilization of reproductive health service during delivery.

Analysis has been carried out using both Bivariate and multivariate technique where neonatal mortality was treated as dependant variable. Neonatal mortality of the two religious groups has been examined using the reproductive health care utilization of the two religious communities controlling the biosocial and socio-cultural factors of the two communities. Here by biosocial we mean the women's age and number of living children and by socio-cultural we mean the education of woman. Finally, for health cares utilization, we include prenatal care including tetanus immunization of reproductive women and health care utilization during delivery time such as place of delivery, type of professional help during delivery time. Neonatal mortality (dependant variable) has been modelled separately for each area to examine if the differential reproductive health services have different effect on the reproductive health status of these two religious groups.

Results: Results will be produced in two phrases. In the first phrase, trends in neonatal mortality between two religious groups in two areas (ICDDR, B and Government areas) will be presented followed by the results of the multivariate analyses.

Trends in neonatal mortality between two religious groups presented in figures 1a and 1b demonstrate that neonatal mortality was consistently high among Hindus during the pre intervention period in the ICDDR, B area and the whole period (1978-2003) in the Government area where intervention was minimum. Figure 1b also reveals that neonatal mortality among both religious groups in the intervention area declining since 1980 and rapidly since 1986 when additional interventions were introduced in the ICDDR, B area. By 1993, even a lower neonatal mortality among the Hindus in the ICDDR, B area is evident. This is very much consistent with the tetanus immunization

coverage of the Hindu women of reproductive age shown in Figure 2. Figure 2 demonstrates that acceptance of tetanus of immunization was consistently high among Hindu women since the beginning of the programme in 1978 and by 1993 almost 100 percent of the Hindu women were immunized. In the govt. service area, coverage of safe motherhood programme and immunization against tetanus are gradually increasing. Latest statistics (2006) suggests that 83 percent of pregnant women have immunization against tetanus in the Government area.

The last two Figures (Figure 3a and 3b) have give even a more interesting out come. Neonatal mortality breakdown by several age segments reveals that mortality among neonates aged 5-29 days were high among Hindus but declined equally among Hindus and Muslims but more among Hindus over the period. By 1993, neonatal mortality among Hindus reduced further and succeeds neonatal mortality of the Muslims in the ICDDR,B area. On the other hand, mortality among neonates of aged <5 days was high among both religion but higher among Hindus though started declining more among Hindus in the ICDDR, B area since 1993. It is still high among Hindus in the Government area (fig.3b).

Results of the multivariate analysis carried out for the ICDDR, B service area show that neonatal death between two religious groups is not significantly different from one another. Three factors that influence neonatal mortality in the ICDDR,B area are, higher education of women which reduced the risk of neonatal death while pregnancy and delivery related complication (breech presentation of baby and baby not cried after delivery) elevates the risk of dying among neonates in the ICDDR,B service area. The odd of not having died is 0.54 for those whose mother has higher education. Similarly, visits to traditional birth attendant more than once decrease the risk of dying among neonates. But the risk of dying increases significantly if the neonates have breech presentation and not cried after delivery. The odds of dying increases 12 times if the baby have breach presentation during delivery and 7 times if the baby did not cry immediately after delivery.

However, a different result is evident when a similar model has been carried out for the Govt. area. Results confirm that despite a similar utilization of the Govt. reproductive health service, Hindus has significant higher neonatal mortality than the Muslim in the

Govt. area. The odds of dying is 1.95 time higher if the birth belong to Hindu mother. Other factors that influence neonatal mortality in this area are consistent with other studies related with neonatal mortality. The factors that have significantly elevates the risk of dying among neonates are women's young age, breech presentation of the baby and baby not cried after delivery. Similar to ICDDR, B area magnitude of the risk of dying is similar in both areas if the baby has breech presentation at birth and not cried after delivery. The odds of dying are 9.8 and 11.4 respectively. Higher education of the women and visits to traditional birth attendant more than once reduces the risk of dying among neonates by 38 percent and 30 percent in this area respectively.

Discussion and conclusion

Results of the analyses show evidence of differential neonatal mortality between two religious communities in the rural area of Matlab. This differential mortality of the neonates of two religious groups has gradually disappeared in the ICDDR, B area after the introduction of health intervention program. In the Government area while the overall neonatal mortality has been reduced overtime, the differential mortality among neonates of two religious groups is still very evident. These differential mortality in the late '70s and early 80s in the ICDDR, B area and during the whole period (1977-2003) in the Government area may be related with the differential birth and delivery practices among two religious groups.

These two religious groups despite living in the same society maintained distinct cultural practices related to marriage, birth and death rituals. In depth literature on birth practice suggests that both the religions treated the event of childbirth process as a spiritually unclean process (Walia et al. 1980, UNICEF, 1984, Jorgenson, 1983). Thus delivery of baby usually occurs in a corner of the house or corner of a corridor. For the Hindus, it can even be a place totally detached from the main dwelling. Mothers and child were kept separate from the family for forty days. More harmful and hazardous rituals exist among Hindus (Jorgenson, 1983). Islam et al. (1989) reports that Muslim women at least use old mats or cloths as a cover on the floor while Hindu women use banana leaves or nothing at all on the floor. After delivery the Muslim women and child quickly get access to the bed while the Hindu women and child remain confined

in their birth room sleeping on the mud floor for longer period. Access to bed for the Hindu mothers and newborn is usually denied as that bed has to be destroyed or burned when delivery ritual has been over (communication with a Hindu friend). These birth rooms used by the Hindu community is usually damp, unclean and have poor ventilation, All these factors may act as a source of acute respiratory illness in the new born.

However, tetanus immunization coverage is almost universal in the ICDDR, B area. This is more evident among Hindus. The remarkable decline in neonatal mortality especially among the children of 5-29 days and the disappearance of the differential in neonatal mortality between two religious groups in the ICDDR, B area may be due to high acceptance of tetanus immunization among the Hindus. It is very likely that neonatal mortality in the Government area would have been higher were it not for the reproductive health care services provided by the government.

Despite all the facts, neonatal mortality among the very young children of age <5 days still remains very high among both communities. A careful programmatic effort may be needed to reverse the present trends

Finally, in conclusion, we can say that when the utilization of service is low, neonates of the minority community are at a higher risk of death. However, in an intensive intervention situation, the Hindu community overcame the adverse situation and improved the survival probabilities of neonates. High neonatal mortality among Hindus found in the govt. area and in ICDDR, B area (in the past) may be related with their cultural practices in regards to pregnancy and delivery, which is quiet different from the Muslims.
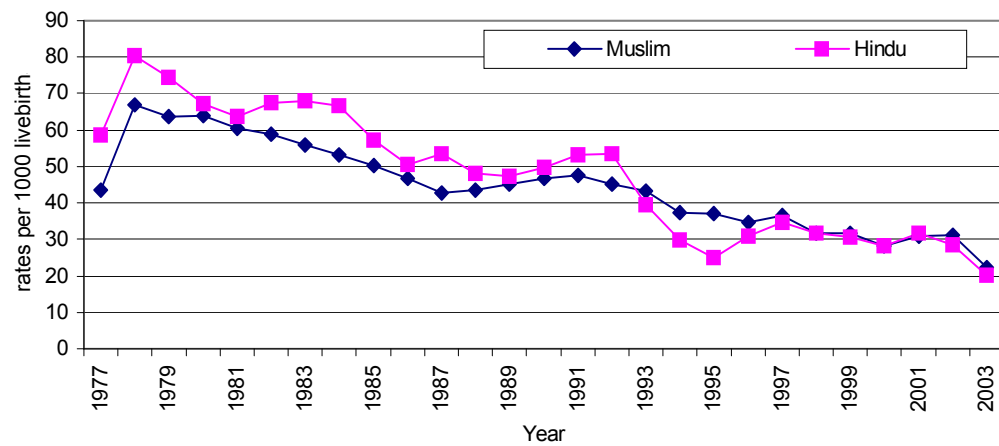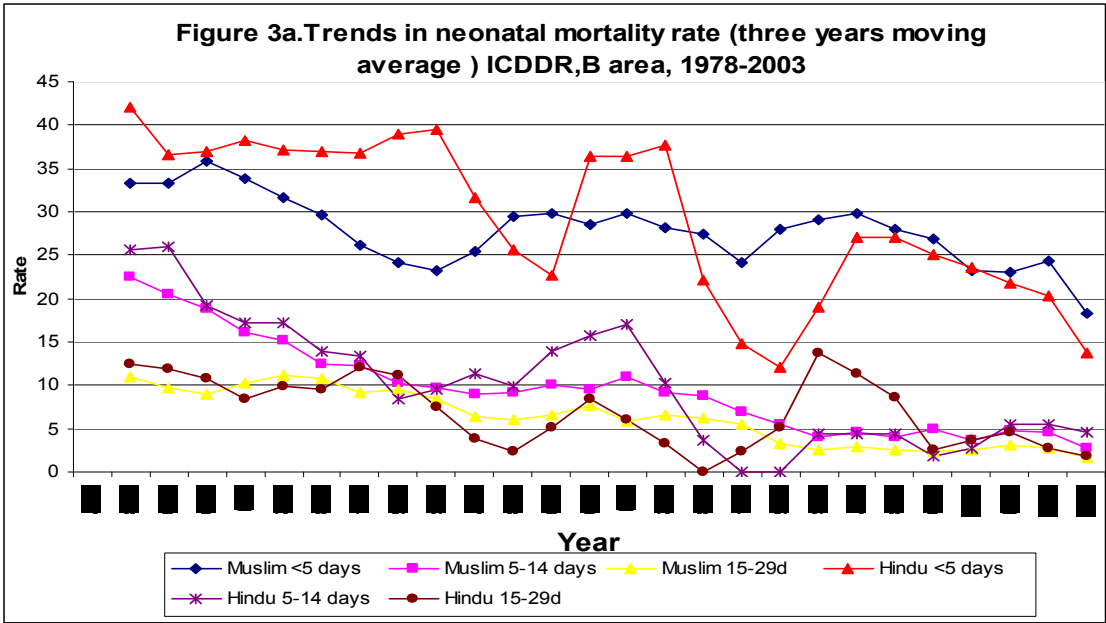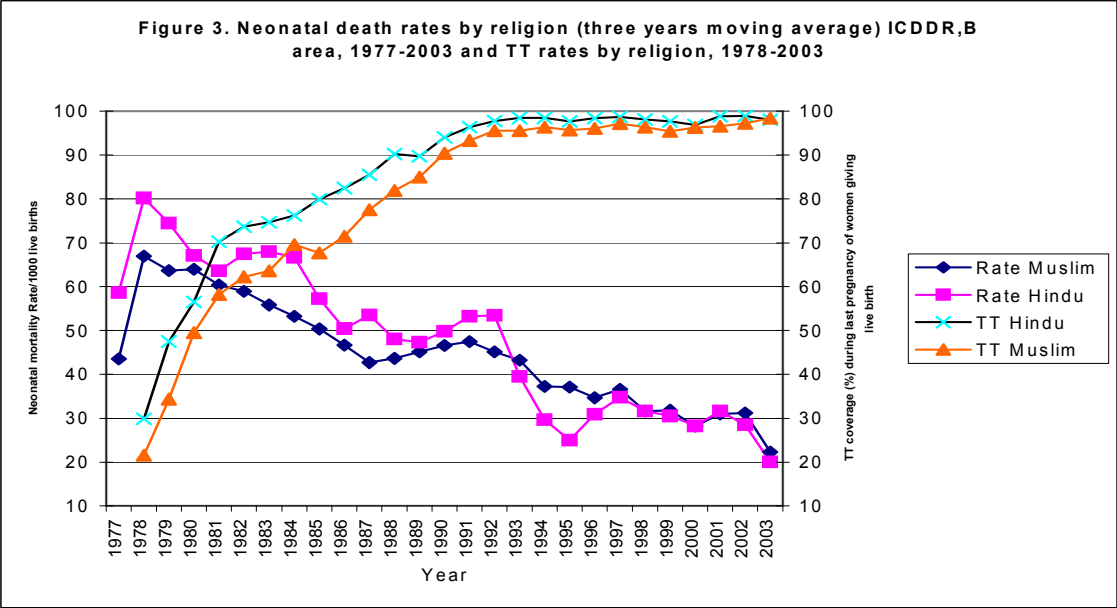
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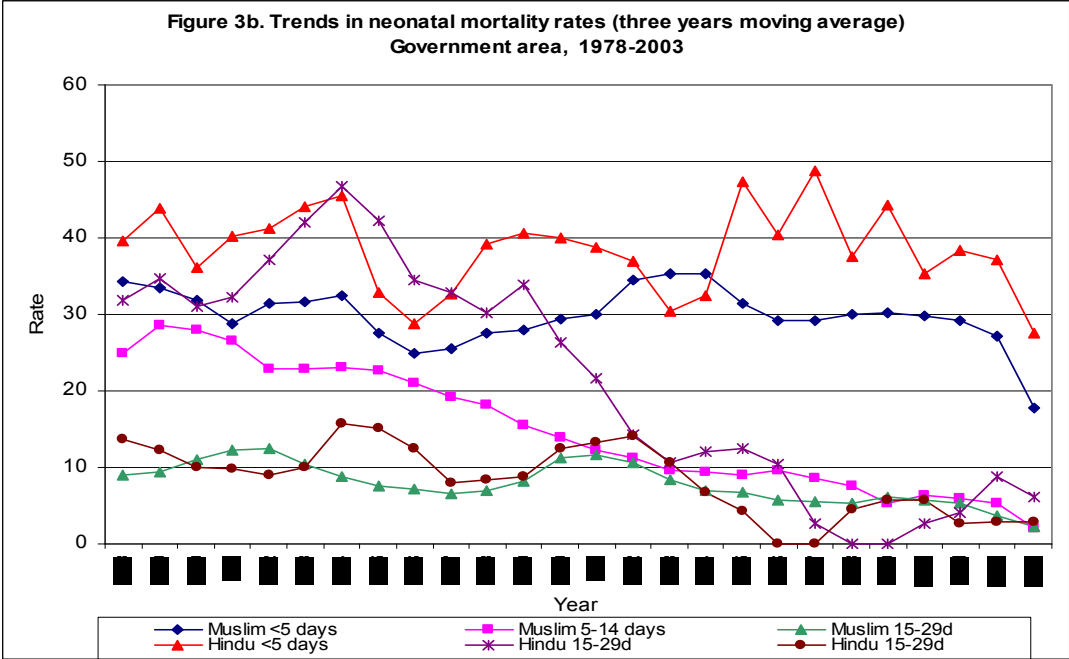
Fugure 1(a). Neonatal death rates by religion (three years moving average) Government area, Matlab, 1977-2003
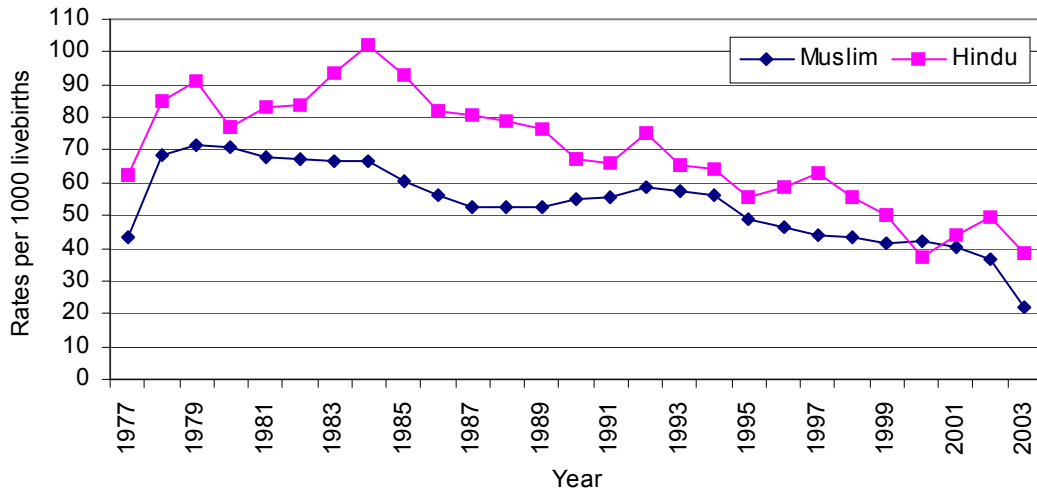
Figure 1(b). Neonatal death rates by religion (three years moving average) ICDDR,B area, Matlab, 1977-2003

Figure 3. Neonatal death rates by religion (three years moving average) ICDDR,B area, 1977-2003 and TT rates by religion, 1978-2003

Figure 3a.Trends in neonatal mortality rate (three years moving average) ICDDR,B area, 1978-2003

Figure 3b. Trends in neonatal mortality rates (three years moving average) Government area, 1978-2003

Table 1: Logistic regression coefficients of biosocial and socio-cultural and reproductive health services factors associated with neonatal mortality of two religious groups, Hindu and Muslims in Matlab, Bangladesh, 2002-2003.

Variables	Co-Efficients	
	ICDDR,B Area	Govt. Area
Women's age		
<20	--	--
20-29	-0.37	-0.616**
29+	-0.216	-0.678**
Women Education		
None	--	--
1-5	-0.141	-0.081
5+	-0.608**	-0.476*
Visit for Pre natal care at Govt. Hospital		
None	--	--
One visit	1.077*	-0.286
More than one visit	0.284	-0.521*
Visit for Pre natal care to TBA		
None	--	--
One visit	0.108	-0.135
More than one visit	-0.404*	-0.345*
Visit for Pre natal care at ICDDR,B Hospital		
None	--	--
One visit	0.283	-0.318
More than one visit	-0.009	0.218
Baby cried at the time of birth		
Yes	--	--
No	1.968***	2.437***
Delivery sequence of baby at the time of birth		
Normal	--	--
Breach	2.51***	2.27***
Religion		
Muslim	--	--
Hindus	-0.101	0.666**
Constant	-3.147	-2.943

-- reference categories. * p<05, **p<01, *** p<001