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The determinants of essential newborn care for home births in Bangladesh

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ABSTRACT

Objectives: To examine the association of sociodemographic, antenatal and delivery care factors with the essential newborn care (ENC) practices of neonates born at home in Bangladesh.
Study design: This study analyzed data of a cross-sectional survey—the Bangladesh Demographic and Health Survey, 2011.
Methods: This analysis considered 3190 most recent live-born infants who were delivered at home within three years of the survey. Logistic regression models were used to identify the factors affecting the implementation of six ENC practices, namely using disinfected instruments to cut the umbilical cord, avoidance of application of any substances to the umbilical cord stump, immediate drying and wrapping of newborns, delayed bathing of newborns, and immediate initiation of breastfeeding.
Results: Factors affecting ENC practices in Bangladesh are low parental education, low utilization of antenatal care services, the absence of skilled birth attendants, smaller size at birth, higher birth order and mother's age at birth. Regional factors also seem to considerably affect ENC practices.
Conclusion: There is ample scope to improve the coverage of ENC practices in Bangladesh. Health promotion programmes that target parents with low education and older mothers may help to build awareness of ENC practices. This investigation provides insight into the key determinants of ENC practices, which require consideration when scaling up ENC practices in low-income and lower middle–income countries.

Introduction

The neonatal period—the first 28 days of life—is the time when a child is most vulnerable to illness, injury and death. Worldwide, approximately, three million children die in their neonatal period.[1] Around 99% of these deaths occur in the low-income and lower middle–income countries (LMICs) where health systems are weak and a large proportion of women give birth at home without any assistance from skilled birth attendants (SBAs).[1,2] The majority of these neonatal deaths can be prevented by evidence-based health interventions that are available, affordable and acceptable to women in LMICs.[3]

Essential newborn care (ENC) is a strategy comprised of interventions designed to improve newborn health and support mothers to care for their babies. ENC includes immediate

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drying and wrapping of newborns after birth, initiating skin-to-skin (STS) contact, clean cord care, dry cord care, immediate initiation of breastfeeding and delayed bathing.[4] Despite the acknowledgement of the importance of ENC, its implementation remains low, particularly for home births in LMICs.[5–10]

Factors determining the implementation of individual components of ENC, although investigated widely, have not been consistently identified in earlier studies.[5,8,11,12] For example, mothers' education, antenatal care (ANC) and the presence of SBAs were found to positively influence the delivery of thermal care in Nepal.[5] In contrast, a study in India observed that ANC visits and the presence of SBAs were not significantly associated with thermal care but influenced the practice of dry cord care and early breastfeeding.[8] Again, a recent study in Tanzania found that the factors positively associated with immediate initiation of breastfeeding were mother's age, education, unemployment, living in urban areas, as well as the assistance of SBAs.[11] In contrast, a study in Bangladesh reported a negative effect of a mother's age on the immediate initiation of breastfeeding.[12] Such findings suggest that factors affecting the implementation of ENC may differ across countries or regions within a country. Therefore, country-specific analysis of the determinants of specific ENC practices can inform policies and strategies to improve newborn care and mobilize resources to enhance the coverage and uptake of ENC for individual countries.

Like other LMICs, Bangladesh exhibits a high neonatal mortality rate (28 per 1000 live births) in combination with low uptake of ENC.[13] The majority of women in the country give birth at home, with more than half assisted by unskilled birth attendants.[13] Hence, an understanding of the determinants of ENC will be useful in designing cost-effective interventions to better support the delivery of services aiming to improve newborn care. In this context, this study aims to examine the association of important sociodemographic, antenatal and delivery care factors that may affect the delivery of ENC practices to babies born at home in Bangladesh.

Methods

Data source

This study analyzed data from the 2011 Bangladesh Demographic and Health Survey (BDHS), a cross-sectional survey collecting nationally representative demographic and health information every three to four years.[14] The aim of this survey is to monitor and evaluate maternal, child health and family planning programmes to support future interventions plans.

The primary sampling unit for 2011 BDHS was an enumeration area (EA), with an average of 120 households. In the first stage, 600 EAs were sampled using probability proportional to the EA size followed by household listing. In the second stage, an average of 30 households was selected per EA using systematic sampling technique. Based on a two-stage stratified sampling method, the survey collected information of 17,141 households. Of these households, 17,842 ever-married women aged 12–49 years were interviewed with a response rate of approximately 98%. The number of male respondents was 3997, as they were interviewed only from one-third of the surveyed households and the response rate was around 92%. All information obtained in the survey was self-reported and collected by separate questionnaires for households, women and men. The household questionnaire focused on economic aspects, while questionnaires for men and women collected sociodemographic and health-related information. The women's questionnaire additionally collected data on the use of antenatal, intrapartum and postnatal care services. Details of the design and data collection procedures have been described elsewhere.[14]

Study participants

The present analyses were restricted to all live-born home delivered infants. Each mother's most recent birth that was within three years of the survey was considered for this study as detailed information on ENC practice was only available for these births.

Outcome variable

The primary outcomes of interest were the six individual components of ENC, as derived from the National Neonatal Health Strategy and Guidelines for Bangladesh, which recommended the following six practices: (1) the use of instruments, disinfected by boiling in water, to cut the umbilical cord; (2) umbilical cord care that did not involve the application of any substances to the cord stump after being cut; (3) drying the newborn within 5 min of birth; (4) wrapping the newborn within 5 min of birth; (5) bathing the newborn at least 72 h after birth; and (6) the initiation of breastfeeding within one hour of delivery.[15]

Exposure variables

Based on previous literature, 11 independent variables were considered in the analyses including mother's age at birth; mother's education; father's education; socio-economic status (SES) of the participant; sex of the child; birth order; size of a baby at birth; number of ANC visits; assistance received during delivery; urban/rural status of the interviewees usual place of residence and administrative divisions.[5,16–20] Mother's and father's educational levels were categorized as no education (up to four years of schooling including none), primary (5–9 years of schooling) and secondary (minimum 10 years of schooling). The definition of SES of a household relied on a wealth index provided in the data which was constructed using the household asset information and principal components analysis.[14,21] Mother's age at birth and number of ANC visits were considered as continuous variables. The size of a baby at birth, as perceived by mother, was categorized as average, larger than average and smaller than average. Assistance received during delivery was categorized as a binary variable (presence or absence of SBAs), while the order of a baby's birth was grouped as first-born and higher (second-born or more).