Title: Sociodemographic and maternal health-related factors associated with mortality among children under three in Bangladesh: an analysis of data from Bangladesh Demographic and Health Survey 2017-18

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Abstract: Abstract Background Child mortality remains remarkably high in many low- and middle-income countries (LMICs), including Bangladesh. This study aimed to identify the sociodemographic and maternal health-related factors associated with under three (U3) child mortality in Bangladesh. Methods We extracted data of 5299 U3 children from Bangladesh Demographic and Health Survey (BDHS) 2017-18. We used descriptive statistics to summarize the data. The chi-square ($\chi 2$) test, simple and multiple Firth logistic regression were performed to test the associations between priori-defined factors and U3 mortality. Results In Bangladesh, the U3 child mortality rate was 35 deaths per 1,000 live births, with a median age at death of less than one month. The adjusted model revealed that the odds of U3 child mortality were higher among children born to mothers aged between 30 and 39 years [adjusted odds ratio (AOR) = 2.01, 95% confidence interval (CI): 1.30–3.11; p-value (p) = 0.002], those who did not use any contraceptive [AOR = 2.57, 95% CI: 1.90–3.47; $p < 0.001$], with first pregnancy [AOR = 14.91, CI: 4.60–48.30; $p < 0.001$], had birth interval less than 24 months [AOR = 2.10, CI: 1.23–3.60; p = 0.007], children born to mothers who delivered vaginally [AOR = 3.18, 95% CI: 2.07–4.87; $p < 0.001$]. However, lower odds of mortality were observed among children of mothers with higher education levels [AOR = 0.50, 95% CI: 0.28–0.90; p = 0.021] and families with more than five members [AOR = 0.61, 95% CI: 0.45–0.83; $p < 0.01$]. In addition, religion, birth attendant during delivery, and the child's birth order were significantly associated with U3 child mortality, whereas mortality did not vary significantly across the divisions. Conclusions Higher odds of U3 child mortality were associated with mothers who did not use contraceptives, delivered vaginally, and were aged 30–39 years in Bangladesh. Conversely, higher maternal education and larger family size were associated with lower odds of U3 child mortality. The findings suggest that community-based family planning awareness programs focused on contraceptive use, as it prevents childbirth and is also a marker of health service usage.

Keywords: Factors Child mortality Firth logistic regression Bangladesh

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