

## 2. Abstract

**Objective:** Low birth weight (LBW) is one of the main causes of neonatal mortality. This research is to investigate incidence of low birth weight and to identify its risk factors and to examine association of low birth weight with different risk factors in a large population in Bangladesh.

**Methodology:** The research study was designed as a case control of 8474 neonates at birth in 2004 and 2005 in rural villages of Bangladesh, 2471 neonates had LBW (birth weight less than 2500 grams) of these 2469 LBW were chosen as case group and 2469 matched normal weight neonates (birth weight more than 2500 grams) were chosen as control group. Means and proportions of the background characteristics were calculated by *t* tests. For analyzing the effect of different background characteristics and to identify different risk factors and its association with low birth weight bivariate logistic regression and conditional logistic regression analyses were done. To analyze multiple effect of different risk factors multiple logistic regression model was developed. All analyses were performed using STATA version 8.0.

**Result:** Incidence of LBW was found to be 29.2 percent in rural community of Bangladesh. Low birth weight was found to be associated with poor socioeconomic quintile. Odds ratio of poorest of the poor household was 1.47 (95% CI: 1.21-1.80, *p* value = 0.003). Maternal age less than 20 was shown to have higher risk of developing low birth weight compared to maternal age of 21-25 (OR: 1.67, 95% CI: 1.43-1.96, *p* value 0.000). A multivariate logistic regression model shows significant association of developing low birth weight with the first pregnancy (OR: 1.83, 95% CI: 1.53-2.19, *p* value 0.000), no antenatal checkup (OR: 1.36, 95% CI: 1.23-1.50) during the pregnancy and preterm delivery (OR: 2.43, 95% CI: 2.05-2.88), adjusted with socioeconomic quintile, neonatal mortality, maternal education, birth spacing, antenatal visit and gestational age. Low birth weight has direct effect

of developing neonatal morbidity such as very severe diseases according to IMCI guideline. Low birth weight babies are at higher risk to die. Low birth weight babies were found to have 5 times higher risk of mortality compared with normal birth weight baby (OR: 5.43, 95% CI: 3.43-8.62, p value 0.000)

**Conclusion:** Incidence of low birth weight in rural Bangladesh is high. There are several risk factors of low birth weight including poor socioeconomic condition, early pregnancy, gestational age less than 37 weeks and first pregnancy. Neonate with low birth weight is also prone to develop more morbidity and high mortality compared to those of normal birth weight neonates. Appropriate education, behavioral change communication and health intervention need to be designed and implemented to reduce the incidence of low birth weight in Bangladesh.