## Study area and population: Rajshahi district was the target area of the present study and all mothers who had at least one child (age, 6-24 months) were considered as target population. For this cross sectional study, data was collected from January to March, 2019.

**Sample size determination:** The required sample size for this study was estimated using the formula: n=, where n= the required sample size, p is the proportion of prevalence of early initiation of breastfeeding (here, p= 0.514) and z=1.96 at 95% confidence interval, and d is the margin of error, we considered d=0.05. The prevalence of initiation of breastfeeding (p value) was taken from a previous publication [18]. This formula provided that 384 sample was adequate for our present study. However, 440 samples (15% extra) were considered for the study for allowing some failure cases.

**Sampling:** Multistage random sampling was utilized for this study. In the first stage, 2 Upazilas were selected randomly from 9 Upazilas in Rajshahi district. In the second stage, 2 unions were selected from each selected Upazilas randomly. Similarly, 1 ward was selected from Rajshahi City Corporation randomly. In the third and final stage, 80 mothers were selected from each selected unions and 120 mothers were selected from ward by randomly. All necessary information was collected from respective ward councilor’s office/union parishad. Before, collecting data, we discussed about our research with selected mothers and their husbands/guardians, and written consent had been taken from each mother. Unfortunately, 19 selected mothers did not agree to provide their information, finally 421 mothers’ information was analyzed in this study. A self-developed questionnaire was used for collecting information from our selected mothers. The questionnaire was draft, and sent to some experts for taking their opinions/suggestion to improve it. According experts’ comments/suggestion the questionnaire was modified and finalized for data collection. The original questionnaire was in English, and the revised questionnaire was translated into Bangla (mother tongue of Bangladesh), and the Bangla questionnaire was checked by two authors. A pilot survey had been done for observing whether there was any lacking or drawback in the questionnaire. We did not get lacking or drawback.

## Outcome variable: Early initiation of breastfeeding (EIBF) was considered as the outcome variable in this study. It was measured by a question, “did you provide your breast milk to your infant within one hour after delivered? EIBF was expressed as a dichotomous variable with category 1 for initiation of breastfeeding within one hour (early initiation) and category 0 for initiation of breastfeeding after one hour (late initiation).

**Independent variables:** Some socio-economic, demographic and anthropometric factors were considered as independent variables for this study. The variables were selected on the basis of previous studies [18-20]. All selected variables, their categories with codes are described in Table 1.

**Insert Table 1 about here**

**Statistical analysis:** Frequency distribution (percentage) was used to determine the prevalence of EIBF among mothers in Rajshahi district, Bangladesh. Chi-square tests were conducted to assess the association between independent variables and the EIBF. Binary multiple logistic regression analysis was used to detect the impact of socio-economic, demographic, anthropometric and behavioral factors on EIBF among mothers in Rajshahi district. We used the magnitude of the standard error (SE) for detecting the multicollinearity problem among the independent variables, if the magnitude of the SE lies between 0.001 and 0.5, it is judged that there is no evidence of multicollinearity [21]. A value of p<0.05 was considered as statistically significant in the analysis. All statistical analyses were performed using SPSS (IBM Version 21).