**Supporting information**

**S1 Table. Unadjusted LR statistics for type 3 analysis**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Source** | **BDHS 2011** | | **MICS 2012** | | **BDHS 2014** | | **MICS 2019** | |
| **Chi-Square** | **P-value** | **Chi-Square** | **P-value** | **Chi-Square** | **P-value** | **Chi-Square** | **P-value** |
| **Type of Delivery** | 0.17 | 0.681 | 11.58 | <0.001 | 1.88 | 0.170 | 226.75 | <0.001 |

**S2 Table. Adjusted LR Statistics for Type 3 Analysis**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Covariates** | **BDHS 2014** | | **MICS 2012** | | **BDHS 2014** | | **MICS 2019** | |
| **Chi-Square** | **P-value** | **Chi-Square** | **P-value** | **Chi-Square** | **P-value** | **Chi-Square** | **P-value** |
| **Type of Delivery** | 1.30 | 0.254 | 0.08 | **0.071** | 8.24 | **0.004** | 106.25 | **<0.001** |
| **Mother Age** | 0.80 | 0.671 | 10.87 | **0.004** | 2.06 | 0.357 | 0.51 | 0.775 |
| **Religion** | 2.31 | 0.128 | 2.50 | 0.114 | 0.62 | 0.429 | 0.75 | 0.387 |
| **Place of residence** | 4.39 | **0.036** | 0.00 | 0.989 | 0.00 | 0.969 | 0.01 | 0.905 |
| **Geographical Location** | 63.71 | **<0.001** | 60.13 | **<0.001** | 9.48 | 0.148 | 91.56 | **<0.001** |
| **Mother's education** | 1.55 | 0.671 | 8.95 | 0.062 | 3.76 | 0.288 | 0.05 | 0.973 |
| **Wealth Index** | 6.49 | 0.166 | 3.21 | 0.524 | 5.71 | 0.222 | 4.26 | 0.372 |
| **Body Mass Index** | 0.14 | 0.931 | 8.93 | **0.012** | 6.41 | **0.041** | 6.64 | **0.036** |
| **Breastfeed** | 0.00 | 0.990 | 0.99 | 0.321 | 2.63 | 0.105 | 2.54 | 0.111 |
| **Sex of the children** | 0.14 | 0.705 | 1.65 | 0.199 | 4.26 | **0.039** | 0.06 | 0.808 |
| **Child age** | 3.15 | 0.207 | 0.55 | 0.459 | 9.71 | **0.008** | 3.23 | 0.199 |
| **Size at birth** | 5.92 | 0.206 | 5.54 | **0.236** | 7.63 | 0.106 | 4.39 | 0.356 |
| **Weight at birth** | - | - | 4.02 | **0.045** | - | - | 0.10 | 0.750 |

**S3 Table. Influence of factors associated with childhood diseases (lower diseases and normal delivery vs. higher diseases due to C-section delivery)**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sources** | **Adjusted Estimates** | | | | | | | | | | | |
| **BDHS 2011** | | | **MICS 2012** | | | **BDHS 2014** | | | **MICS 2019** | | |
| **ARR\*** | **95% CI** | **p-value** | **ARR\*** | **95% CI** | **p-value** | **ARR\*** | **95% CI** | **p-value** | **ARR\*** | **95% CI** | **p-value** |
| **Type of Delivery** |  |  |  |  |  |  |  |  |  |  |  |  |
| C-section | 1.07 | 0.95-1.20 | 0.245 | 1.01 | 0.97-1.04 | 0.071 | 1.15 | 1.05 - 1.27 | 0.004 | 1.14 | 1.11-1.17 | <0.001 |
| Normal | 1 | - | - | 1 | - | - | 1 | - | - | 1 | - | - |
| **Mother’s age group in years at birth** |  |  |  |  |  |  |  |  |  |  |  |  |
| 15-19 | 1.01 | 0.83-1.22 | 0.916 | 1.04 | 0.97-1.12 | 0.276 | 1.05 | 0.95-1.15 | 0.182 | 1.01 | 0.96-1.06 | 0.720 |
| 20-34 | 0.96 | 0.87-1.06 | 0.623 | 0.93 | 0.88-0.97 | 0.002 | 0.96 | 0.87-1.06 | 0.376 | 0.98 | 0.94-1.02 | 0.510 |
| 35+ | 1 | - | - | 1 | - | - | 1 | - | - | 1 | - | - |
| **Religion** |  |  |  |  |  |  |  |  |  |  |  |  |
| Islam | 0.90 | 0.79-1.02 | 0.104 | 0.95 | 0.90-1.01 | 0.107 | 1.06 | 0.92-1.21 | 0.431 | 0.99 | 0.95-1.02 | 0.381 |
| Other religion (Hinduism, Buddhism, Christianity) | 1 | - | - | 1 | - | - | 1 | - | - | 1 | - | - |
| **Place of residence** |  |  |  |  |  |  |  |  |  |  |  |  |
| Urban | 1.12 | 1.01-1.25 | 0.034 | 1.01 | 0.95-1.05 | 0.989 | 1.00 | 0.91-1.10 | 0.969 | 1.01 | 0.97-1.03 | 0.905 |
| Rural | 1 | - | - | 1 | - | - | 1 | - | - | 1 | - | - |
| **Geographical Location** |  |  |  |  |  |  |  |  |  |  |  |  |
| Barishal | 0.96 | 0.84-1.10 | 0.552 | 0.94 | 0.82-1.08 | 0.486 | 1.00 | 0.85-1.17 | 0.981 | 0.94 | 0.90-0.99 | <0.001 |
| Chattogram | 0.93 | 0.82-1.05 | 0.235 | 0.90 | 0.81-0.99 | 0.037 | 1.07 | 0.94-1.22 | 0.319 | 0.88 | 0.84-0.92 | 0.017 |
| Dhaka | 1.02 | 0.90-1.14 | 0.769 | 0.90 | 0.82-0.99 | 0.029 | 0.94 | 0.82-1.07 | 0.339 | 0.95 | 0.90-1.01 | 0.420 |
| Khulna | 0.67 | 0.57-0.78 | <0.001 | 1.10 | 0.99-1.21 | 0.164 | 1.04 | 0.89-1.21 | 0.636 | 1.02 | 0.95-1.09 | 0.596 |
| Mymenshing | - | - | - | - | - | - | - | - | - | 0.99 | 0.94-1.04 | 0.719 |
| Rajshahi | 1.05 | 0.91-1.20 | 0.531 | 1.03 | 0.94-1.14 | 0.389 | 0.96 | 0.83-1.11 | 0.554 | 0.89 | 0.84-0.94 | 0.016 |
| Rangpur | 0.53 | 0.44-0.64 | <0.001 | 1.07 | 0.97-1.18 | 0.075 | 0.90 | 0.77-1.01 | 0.160 | 1.02 | 1.02-1.07 | <0.001 |
| Sylhet | 1 | - | - | 1 | - | - | 1 | - | - | 1 | - | - |
| **Educational level (mother)** |  |  |  |  |  |  |  |  |  |  |  |  |
| None | 0.94 | 0.79-1.11 | 0.895 | 0.89 | 0.82-0.96 | 0.042 | 0.89 | 0.75-1.05 | 0.166 | 0.99 | 0.94-1.05 | 0.911 |
| Primary incomplete | 0.93 | 0.86-1.01 | 0.091 | 0.91 | 0.81-1.03 | 0.154 |
| Primary | 0.95 | 0.84-1.07 | 0.805 | 0.97 | 0.91-1.04 | 0.395 | 0.98 | 0.87-1.11 | 0.780 | 0.99 | 0.97-1.03 | 0.827 |
| Secondary incomplete | 0.96 | 0.88-1.05 | 0.457 | 0.98 | 0.92-1.03 | 0.336 | - | - | - | - | - | - |
| Secondary complete/higher | 1 | - | - | 1 | - | - | 1 | - | - | 1 | - | - |
| **Wealth Index** |  |  |  |  |  |  |  |  |  |  |  |  |
| Richest | 1.17 | 1.03-1.32 | 0.019 | 1.04 | 0.99-1.10 | 0.259 | 1.17 | 1.03-1.34 | 0.191 | 1.03 | 0.98-1.07 | 0.574 |
| Richer | 1.13 | 0.99-1.29 | 0.675 | 1.03 | 0.98-1.09 | 0.150 | 1.10 | 0.95-1.28 | 0.119 | 1.02 | 0.97-1.05 | 0.555 |
| Middle | 1.11 | 0.98-1.25 | 0.424 | 1.02 | 0.96-1.09 | 0.494 | 1.11 | 0.96-1.28 | 0.148 | 1.01 | 0.96-1.02 | 0.249 |
| Poorer | 1.08 | 0.94-1.26 | 0.380 | 1.00 | 0.95-1.07 | 0.876 | 1.11 | 0.98-1.25 | 0.110 | 1.00 | 0.95-1.03 | 0.678 |
| Poorest | 1 | - | - | 1 | - | - | 1 | - | - | 1 | - | - |
| **Body Mass Index (mother)** |  |  |  |  |  |  |  |  |  |  |  |  |
| Underweight | 1.03 | 0.88-1.23 | 0.831 | 1.11 | 1.04-1.19 | 0.002 | 1.13 | 1.01-1.26 | 0.025 | 1.05 | 1.01-1.09 | 0.027 |
| Overweight | 1.02 | 0.89-1.18 | 0.762 | 1.12 | 1.03-1.21 | 0.005 | 1.17 | 1.03-1.32 | 0.015 | 1.01 | 0.97-1.02 | 0.621 |
| Normal | 1 | - | - | 1 | - | - | 1 | - | - | 1 | - | - |
| **Breastfeeding status** |  |  |  |  |  |  |  |  |  |  |  |  |
| Yes | 0.99 | 0.89-1.13 | 0.990 | 0.91 | 0.76-1.10 | 0.634 | 0.91 | 0.81-1.02 | 0.066 | 0.81 | 0.64-1.03 | 0.081 |
| No | 1 | - | - | 1 | - | - | 1 | - | - | 1 | - | - |
| **Sex of child** |  |  |  |  |  |  |  |  |  |  |  |  |
| Male | 1.02 | 0.94-1.10 | 0.705 | 1.03 | 0.99-1.06 | 0.822 | 1.08 | 1.00-1.16 | 0.039 | 1.01 | 0.98-1.02 | 0.808 |
| Female | 1 | - | - | 1 | - | - | 1 | - | - | 1 | - | - |
| **Child’s age group in months** |  |  |  |  |  |  |  |  |  |  |  |  |
| 0-11 | 1.09 | 0.99-1.21 | 0.071 | 1.02 | 0.98-1.06 | 0.459 | 1.15 | 1.04-1.27 | 0.006 | 1.03 | 0.98-1.08 | 0.199 |
| 12-23 | 1.04 | 0.95-1.15 | 0.412 | 1 | - | - | 1.14 | 1.04-1.26 | 0.005 | 1.02 | 0.97-1.07 | 0.521 |
| 24-35 | 1 | - | - | - | - | - | 1 | - | - | 1 | - | - |
| **Size at birth** |  |  |  |  |  |  |  |  |  |  |  |  |
| Very large | 0.83 | 0.59-1.16 | 0.653 | 0.81 | 0.60-1.09 | 0.166 | 0.93 | 0.80-1.07 | 0.314 | 0.95 | 0.88-1.03 | 0.411 |
| Larger than average | 0.87 | 0.62-1.24 | 0.446 | 0.82 | 0.61-1.10 | 0.223 | 0.95 | 0.79-1.14 | 0.585 | 0.95 | 0.88-1.03 | 0.993 |
| Average | 0.92 | 0.67-1.26 | 0.672 | 0.83 | 0.62-1.12 | 0.223 | 0.96 | 0.73-1.27 | 0.795 | 0.93 | 0.86-1.00 | 0.951 |
| Smaller than average | 0.94 | 0.70-1.29 | 0.383 | 0.89 | 0.65-1.21 | 0.461 | 1.07 | 0.90-1.27 | 0.418 | 0.95 | 0.86-1.07 | 0.589 |
| Very small | 1 | - | - | 1 | - | - | 1 | - | - | 1 | - | - |
| **Weight at birth** |  |  |  |  |  |  |  |  |  |  |  |  |
| Low | - | - | - | 0.96 | 0.92-1.00 | 0.042 | - | - | - | 0.99 | 0.97-1.02 | 0.750 |
| Normal | - | - | - | 1 | - | - | - | - | - | 1 | - | - |

*RR: Risk Ratio; CI: Confidence Interval; ARR: Adjusted risk ratio*

*\*Model adjusted with Propensity scores \*\*Model adjusted with confounding and/or covariates*