**Table 1.** Early childhood education program status at different levels of covariate**s.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Early Childhood Education Program** | | | **P-value** |
| **YES n (%)** | **NO n (%)** | **Total** |
| **Age of child(month)** |  |  |  |  |
| 36-47 | 288(5.98%) | 4527(94.02%) | 4815 (100%) | <0.001 |
| 48-59 | 1544(33.34%) | 3087(66.66%) | 4631 (100%) |  |
| **Child’s sex** |  |  |  |  |
| Male | 949(19.86%) | 3828(80.14%) | 4777 (100%) | 0.2962 |
| Female | 883(18.92%) | 3786(81.08%) | 4669 (100%) |  |
| **Place of residence** |  |  |  |  |
| Urban | 466(23.64%) | 1507(76.36%) | 1973 (100%) | <0.001 |
| Rural | 1366(18.27%) | 6108(81.73%) | 7474 (100%) |  |
| **Division** |  |  |  |  |
| Barisal | 96(18.10%) | 439(81.90%) | 535 (100%) | 0.011 |
| Chattogram | 407(19.62) | 1666(80.38) | 2073 (100%) |  |
| Dhaka | 471(21.63) | 1706(78.37) | 2177 (100%) |  |
| Khulna | 197(19.96) | 789(80.04) | 986 (100%) |  |
| Mymensingh | 163(22.64) | 557(77.36) | 720 (100%) |  |
| Rajshahi | 201(17.05) | 980(82.95) | 1181 (100%) |  |
| Rangpur | 181(17.76) | 840(82.24) | 1021 (100%) |  |
| Sylhet | 155(15.29) | 638(84.71) | 793 (100%) |  |
| **Mother’s Education** |  |  |  |  |
| Primary incomplete | 161(12.95) | 1084(87.05) | 1245 (100%) | <0.001 |
| Primary complete | 374(16.25) | 1930(83.75) | 2304 (100%) |  |
| Secondary incomplete | 926(20.40) | 3612(79.60) | 4538 (100%) |  |
| Or Higher | 371(27.25) | 990(72.75) | 1361 (100%) |  |
| **Wealth Index** |  |  |  |  |
| Poor | 325(15.40) | 1786(84.60) | 2111 (100%) | <0.001 |
| Second | 305(16.19) | 1581(83.81) | 1886 (100%) |  |
| Middle | 336(19.07) | 1428(80.93) | 1764 (100%) |  |
| Fourth | 367(20.13) | 1457(79.87) | 1824 (100%) |  |
| Richest | 498(26.76) | 1363(73.24) | 1861 (100%) |  |
| **Religion** |  |  |  |  |
| Islam | 251(19.38) | 995(80.62) | 1246 (100%) | 0.5996 |
| Other | 1480(19.49) | 6153(80.51) | 7633 (100%) |  |
| **Household Head Sex** |  |  |  |  |
| Male | 1479(19.49) | 6110(80.51) | 7589 (100%) | 0.9956 |
| Female | 2501(19.50) | 1038(80.50) | 3539 (100%) |  |
| **Ethnicity of the Household Head** |  |  |  |  |
| Bengali | 1801(19.30) | 7529(80.70) | 9330 (100%) | 0.0969 |
| Others | 31(26.64) | 85(73.36) | 116 (100%) |  |
| **Mother’s Age at the survey Time** |  |  |  |  |
| 15-19 | 363(20.65) | 1395(79.35) | 1758 (100%) | 0.0963 |
| 20-34 | 1075(19.63) | 4402(80.37) | 5477 (100%) |  |
| 35+ | 266(17.27) | 1273(82.73) | 1539 (100%) |  |
| **Mother Stimulation** |  |  |  |  |
| Yes | 1587(20.44) | 6176(79.56) | 7763 (100%) | <0.001 |
| No | 245(14.55) | 1439(85.45) | 1684 (100%) |  |
| **Father Stimulation** |  |  |  |  |
| Yes | 807(19.1) | 3424(80.9) | 4231 (100%) | 0.5277 |
| No | 1025(19.7) | 4191(80.3) | 5216 (100%) |  |
| **Other Stimulation** |  |  |  |  |
| Yes | 993(19.66) | 4038(80.34) | 5031 (100%) | 0.426 |
| No | 830(19.06) | 3577(80.94) | 4407 (100%) |  |
| **Inadequate Supervision** |  |  |  |  |
| Yes | 129(16.24) | 667(83.76) | 796 (100%) | 0.0259 |
| No | 1703(19.68) | 6947(80.32) | 8650 (100%) |  |
| **Books** |  |  |  |  |
| Yes | 1261(25.62) | 3661(74.38) | 4922 (100%) | <0.001 |
| No | 571(12.61) | 3954(87.39) | 4525 (100%) |  |
| **Toys** |  |  |  |  |
| Yes | 1495(19.19) | 6296(80.81) | 7791 (100%) | 0.3533 |
| No | 337(20.36) | 1318(79.64) | 1655 (100%) |  |
| **Mass Media** |  |  |  |  |
| Yes | 996(19.02) | 4242(80.98) | 5238 (100%) | 0.315 |
| No | 708(20.02) | 2828(79.98) | 3536 (100%) |  |
| **Child Punishment** |  |  |  |  |
| Yes | 106.(21.06) | 396(78.94) | 502 (100%) | 0.4157 |
| No | 1726(19.30) | 7219(80.70) | 8945 (100%) |  |
| **Early Childhood Diseases** |  |  |  |  |
|  |  |  |  |  |
| Yes | 534(19.68) | 2178(80.32) | 2712 (100%) | 0.7002 |
| No | 1296(19.28) | 5427(80.72) | 6723 (100%) |  |
| **Underweight** |  |  |  |  |
| Yes | 318(14.03) | 1945(85.97) | 2263 (100%) | <0.001 |
| No | 1452(21.17) | 5406(78.83) | 6858 (100%) |
| **Stunned** |  |  |  |  |
| Yes | 301(11.69) | 2269(88.31) | 2570 (100%) | <0.001 |
| No | 1463(22.63) | 5000(77.37) | 6463 (100%) |
| **Wasted** |  |  |  |  |
| Yes | 191(21.55) | 696(78.45) | 887 (100%) | 0.162 |
| No | 1563(19.26) | 6551(80.74) | 8114 (100%) |
| **Overweight** |  |  |  |  |
| Yes | 114(18.93) | 489(81.07) | 603 (100%) | 0.795 |
| No | 1718(19.4) | 7126(80.6) | 8844 (100%) |
| **Sanitation** |  |  |  |  |
| Improved | 1685(19.57) | 6923(80.43) | 8608 (100%) | <0.001 |
| Unimproved | 45(16.93) | 224(83.07) | 269 (100%) |
| **Salt Iodization** |  |  |  |  |
| Yes | 1415(19.6) | 5787(80.4) | 7202 (100%) | <0.001 |
| No | 316(18.9) | 1357(81.1) | 1673 (100%) |

**Table 2.** Factor associated with the early childhood education program.

|  |  |  |
| --- | --- | --- |
| **Adjusted Logistic Regression** | | |
| **Characteristics** | Odds Ratio (95% CI) | P-value |
| **Age of child (month)** |  | |
| 36-47 | Ref | <0.001 |
| 48-59 | 8.33(7.01-9.9) |
| **Place of residence** | | |
| Urban | Ref |  |
| Rural | 0.86(.7-1.07) | 0.175 |
| **Division** |  | |
| Barisal | Ref |  |
| Chattogram | 1.09(0.78-1.53) | 0.61 |
| Dhaka | 1.2(0.85-1.69) | 0.29 |
| Khulna | 1.05(0.74-1.5) | 0.77 |
| Mymensingh | 1.74(1.15-2.63) | 0.01 |
| Rajshahi | 0.85(0.58-1.24) | 0.41 |
| Rangpur | 1.07(0.73-1.56) | 0.73 |
| Sylhet | 1.12(0.73-1.71) | 0.60 |
| **Mothers’ education level** | | |
| Primary incomplete | ref |  |
| Primary complete | 1.41(1.08-1.84) | 0.01 |
| Secondary incomplete | 1.63(1.26-2.12) | 0.00 |
| Secondary Complete Or Higher | 2.20(1.61-3.02) | 0.00 |
| **Wealth index** |  | |
| Poor | Ref |  |
| Second | 0.94(0.75-1.19) | 0.63 |
| Middle | 1.06(0.84-1.35) | 0.63 |
| Fourth | 0.95(0.74-1.21) | 0.66 |
| Richest | 1.23(0.93-1.64) | 0.15 |
| **Ethnicity of the Household Head** |  | |
| Bengali | 0.46(0.26-0.81) | 0.01 |
| Others | ref |  |
| **Mother’s Age at the survey Time** |  | |
| 15-19 | ref |  |
| 20-34 | 0.96 (0.81-1.15) | 0.68 |
| 35+ | 0.82(0.65-1.04) | 0.10 |
| **Mother Stimulation** |  | |
| Yes | 1.13(0.92-1.40) | 0.25 |
| No | Ref |  |
|  |  |  |
| **Inadequate supervision** | | |
| Yes | 0.85(0.66-1.1) | 0.23 |
| No | Ref |  |
| **Books** |  | |
| Yes | 1.76(1.5-2.07) | <0.001 |
| No | ref |  |
| **Underweight** |  | |
| Yes | 0.76(0.6-0.96) | 0.02 |
| No | Ref |  |
| **Stunned** |  | |
| Yes | 0.60(0.49-0.73) | <0.001 |
| No | Ref |  |
| **Wasted** |  | |
| Yes | 1.26(0.97-1.64) | 0.08 |
| No | Ref |  |
| ARI |  | |
| Yes | 1.37(0.80-2.36) | 0.25 |
| No | ref |  |
| **Sold iodization** |  | |
| Yes | 0.88(0.6-1.31) | 0.53 |
| No | ref |  |

**Table 3. Hosmer-Lemeshow Test, Area under ROC Curve, and Calibration test and classification accuracy for final logistic regression model.**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Hosmer-Lemeshow Test | | Area Under ROC Curve | | Calibration test | | Correctly classified |
| Chi- square | P-value | AUC | P-value | Test-statistic | P-value |  |
| 5585.44 | 0.9736 | 0.7806 | <0.001 | 2.96 | 0.0856 | 81.44% |

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