**3 | RESULTS**

**3.1 | Background characteristics of study participants**

From 2014 to 2022, a total of 12,745 mothers who delivered a child were included for this analysis (Table 1). For this analysis, three common delivery modes were considered: home delivery, institutional normal delivery, and cesarean section, which accounted for 5,284 (41.46%), 2,464 (19.34%), and 4,997 (39.21%) of cases, respectively. Overall, most of the mothers, approximately 34%, were from the age group 20-24, and the mean age of the participants was 24.59%, whereas almost 60% of the husbands' age fell in the age group of 30-44. Around 50% of the mothers completed their secondary education, while only 16% made it to higher-level education. The percentage of the spouses who completed higher education was the same as the mothers, although the number of uneducated fathers was twice as big as the number of uneducated mothers. The majority (72%) of the women were unemployed, whereas, most of the husbands were working. Among all the husbands around 24% were skilled workers and around 21% were engaged in businesses. Regarding prenatal care, only 42% of mothers went for ANC visits as per the recommendation (four or more) in the given period. Among the participating mothers, about 39% had normal body weight. 68% of women came from a big family of more than four members, and about 42% of women came from wealthy families. We can also find from the Table 1 that, for 49% of the mothers, it was their 2nd or 3rd child and around 66% of the mothers were exposed to mass media. Regarding the place of birth, around 29% were from Dhaka division, and among all the participants, 73% of mothers were residing in rural areas. Additionally, the vast majority of the participants, approximately 91%, were Muslims.

Table 1: Background characteristic of the delivered mother

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **2014** | **2017-18** | **2022** | **Total** |
| **Delivery** |  |  |  |  |
| Home Delivery | 2812 (61.52) | 2472 (50.02) | - | 5284 (41.46) |
| Institutional Normal Delivery | 659 (14.43) | 829 (16.78) | 976 (30.19) | 2464 (19.34) |
| Cesarean section | 1100 (24.06) | 1641 (33.20) | 2256 (69.81) | 4997 (39.21) |
| **Age, years (mean±SD)** | 24.59 (5.75) |  | 25.65 (5.58) |  |
| **Women’s age group** |  |  |  |  |
| 15‐19 | 957 (20.93) | 883 (17.87) | 464 (14.37) | 2304 (18.08) |
| 20‐24 | 1529 (33.46) | 1735 (35.11) | 1097 (33.96) | 4362 (34.22) |
| 25‐34 | 1181 (25.84) | 1278 (25.85) | 888 (27.48) | 2247 (26.26) |
| 35‐49 | 904 (19.77) | 1046 (21.16) | 782 (24.19) | 2731 (21.43) |
| **Women's education** |  |  |  |  |
| No education | 647 (14.15) | 307 (6.20) | 117 (3.63) | 1071 (8.40) |
| Primary | 1277 (27.94) | 1379 (27.91) | 530 (16.41) | 3187 (25.00) |
| Secondary | 2187 (47.84) | 2416 (48.88) | 1811 (56.03) | 6413 (50.32) |
| Higher | 460 (10.07) | 840 (17.01) | 773 (23.93) | 2074 (16.27) |
| **Women’s working status** |  |  |  |  |
| Not working | 3481 (76.19) | 3086 (62.44) | 2578 (79.77) | 9145 (71.76) |
| Working | 1088 (23.81) | 1856 (37.56) | 654 (20.23) | 3598 (28.24) |
| **Women’s BMI** |  |  |  |  |
| Underweight | 1087 (23.71) | 744 (15.06) | 207 (6.40) | 2035 (15.96) |
| Normal weight | 2035 (46.82) | 2242 (45.37) | 622 (19.26) | 5005 (39.27) |
| Overweight | 977 (22.47) | 1367 (27.66) | 541 (16.73) | 2935 (23.03) |
| Obese | 338 (7.01) | 589 (11.91) | 1862 (57.61) | 2771 (21.74) |
| **ANC visit** |  |  |  |  |
| No ANC | 978 (21.42) | 390 (7.90) | 84 (2.60) | 1452 (11.40) |
| 1‐3 | 2160 (47.32) | 2221 (44.95) | 1545 (47.80) | 5926 (46.52) |
| ≥4 | 1428 (31.27) | 2330 (47.15) | 1603 (49.60) | 5361 (42.08) |
| **Husband age** |  |  |  |  |
| 15-29 | 1486 (32.95) | 1563 (32.08) | 1002 (31.27) | 4051 (32.18) |
| 30-44 | 2651 (58.79) | 2937 (60.26) | 1957 (61.05) | 7545 (59.93) |
| 45 or above | 373 (8.27) | 373 (7.66) | 246 (7.68) | 992 (7.88) |
| **Husband education** |  |  |  |  |
| No education | 1091 (23.87) | 661 (13.59) | 348 (10.89) | 2100 (16.63) |
| Primary | 1372 (30.02) | 1651 (33.93) | 770 (24.07) | 3793 (30.02) |
| Secondary | 1458 (31.90) | 1648 (33.87) | 1241 (38.80) | 4347 (34.41) |
| Higher | 649 (14.20) | 906 (18.61) | 839 (26.24) | 2394 (18.95) |
| **Husband occupation** |  |  |  |  |
| Not working | - | 32 (0.65) | 64 (2.01) | 96 (0.76) |
| Farmer | 617 (13.55) | 504 (10.35) | 233 (7.28) | 1353 (10.73) |
| Agriculture | 538 (11.83) | 432 (8.88) | 228 (7.13) | 1199 (9.50) |
| Day labor | 469 (10.30) | 542 (11.15) | 282 (8.81) | 1293 (10.25) |
| Factory worker | 405 (8.89) | 664 (13.64) | 769 (24.02) | 1837 (14.56) |
| Service holder | 271 (5.95) | 286 (5.87) | 291 (9.08) | 847 (6.71) |
| Business | 995 (21.86) | 1017 (20.91) | 680 (21.24) | 2692 (21.34) |
| Skilled worker | 1099 (24.15) | 1366 (28.09) | 623 (19.45) | 3088 (24.48) |
| Other | 158 (3.48) | 22 (0.45) | 31 (0.90) | 211 (1.68) |
| **Household size** |  |  |  |  |
| ≤4 | 1453 (31.78) | 1543 (31.22) | 1105 (34.19) | 4101 (32.17) |
| >4 | 3119 (68.22) | 3399 (68.78) | 2127 (65.81) | 8644 (67.83) |
| **Wealth index** |  |  |  |  |
| Poor | 1857 (40.62) | 2050 (41.48) | 1001 (30.98) | 4908 (38.51) |
| Middle | 877 (19.19) | 945 (19.12) | 678 (20.98) | 2500 (19.62) |
| Rich | 1837 (40.19) | 1947 (39.40) | 1553 (48.04) | 5337 (41.88) |
| **Birth order** |  |  |  |  |
| 1 | 1810 (39.59) | 1883 (38.11) | 1367 (42.53) | 5060 (39.76) |
| 2‐3 | 2126 (46.50) | 2449 (49.55) | 1655 (51.50) | 6230 (48.95) |
| ≥4 | 636 (13.92) | 610 (12.34) | 192 (5.97) | 1438 (11.30) |
| **Mass media** |  |  |  |  |
| No Exposure | 1842 (40.29) | 1751 (35.42) | 790 (24.44) | 4382 (34.38) |
| Exposure | 2730 (59.71) | 3191 (64.58) | 2442 (75.56) | 8363 (65.62) |
| **Division** |  |  |  |  |
| Barisal | 262 (5.74) | 282 (5.70) | 168 (5.19) | 712 (5.58) |
| Chittagong | 1002 (21.93) | 1038 (21.01) | 652 (20.17) | 2693 (21.13) |
| Dhaka | 1614 (35.31) | 1256 (25.41) | 852 (26.37) | 3722 (29.20) |
| Khulna | 364 (7.97) | 458 (9.27) | 432 (13.37) | 1255 (9.84) |
| Mymensingh | - | 426 (8.63) | 236 (7.30) | 662 (5.19) |
| Rajshahi | 458 (10.03) | 578 (11.70) | 378 (11.71) | 1415 (11.10) |
| Rangpur | 448 (9.79) | 531 (10.76) | 344 (10.65) | 1323 (10.38) |
| Sylhet | 422 (9.22) | 372 (7.53) | 170 (5.25) | 963 (7.56) |
| **Place of residence** |  |  |  |  |
| Urban | 1185 (25.91) | 1318 (26.67) | 995 (30.78) | 3497 (27.44) |
| Rural | 3387 (74.09) | 3623 (73.33) | 2237 (69.22) | 9247 (72.56) |
| **Religion** |  |  |  |  |
| Islam | 4193 (91.71) | 4539 (91.86) | 2924 (90.48) | 11656 (91.46) |
| Others | 379 (8.29) | 402 (8.14) | 308 (9.52) | 1089 (8.54) |
| Total | 4571 (100.00) | 4942 (100.00) | 3232 (100.00) | 12745 (1000.00) |

Table 2: Cost Distribution of Child Delivery in Bangladesh (US$) Based on the 2014 BDHS Survey

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Home Delivery | | Institutional Normal Delivery | | Cesarean Section | | Total | | P-value |
|  | Mean (SD) | Median (IQR) | Mean (SD) | Median (IQR) | Mean (SD) | Median (IQR) | Mean (SD) | Median (IQR) |  |
| **Age** | 24.62 (5.87) | 24.00 (20.00) | 24.05 (5.63) | 23.00 (20.00) | 24.87 (5.52) | 24.00 (21.00) | 24.59 (5.75) | 24.00 (20.00) | <0.001 |
| **Women’s age group** |  |  |  |  |  |  |  |  |  |
| 15‐19 | 17.34 (27.44) | 8.76 (23.77) | 55.07 (56.27) | 37.53 (50.04) | 220.49 (129.62) | 187.66 (125.11) | 66.64 (105.10) | 20.02 (68.81) | <0.001 |
| 20‐24 | 14.97 (22.07) | 6.26 (17.52) | 63.85 (78.85) | 37.53 (50.04) | 236.99 (180.56) | 212.69 (187.66) | 75.41 (131.49) | 25.02 (81.32) |  |
| 25‐34 | 15.18 (25.87) | 6.26 (17.52) | 37.53 (43.79) | 289.16 (400.00) | 225.20 (186.41) | 95.61 (241.65) | 95.61 (241.65) | 25.02 (118.85) |  |
| 35‐49 | 14.52 (26.23) | 6.26 (18.77) | 56.04 (65.93) | 37.53 (62.55) | 284.53 (197.43) | 250.22 (225.20) | 86.63 (153.69) | 15.01 (108.85) |  |
| P-value | 0.223 |  | 0.613 |  | <0.001 |  | <0.001 |  |  |
| **Women's education** |  |  |  |  |  |  |  |  |  |
| No education | 11.78 (21.12) | 6.26 (12.51) | 45.40 (43.79) | 25.02 (48.79) | 194.35 (116.86) | 181.41 (125.11) | 28.73 (61.89) | 6.26 (24.40) | 0.034 |
| Primary | 13.23 (23.58) | 6.26 (14.39) | 51.79 (60.27) | 37.53 (49.42) | 232.12 (136.56) | 212.69 (187.66) | 45.76 (91.12) | 12.51 (35.03) |  |
| Secondary | 17.91 (27.15) | 10.01 (22.52) | 59.27 (72.91) | 37.53 (50.04) | 252.98 (242.63) | 225.20 (175.15) | 89.32 (166.34) | 25.02 (118.85) |  |
| Higher | 23.12 (26.73) | 12.51 (31.28) | 62.55 (59.43) | 62.55 (59.43) | 291.82 (342.82) | 250.22 (162.64) | 191.37 (291.26) | 125.11 (218.32) |  |
| P-value | <0.001 |  | <0.001 |  | 0.025 |  | <0.001 |  |  |
| **Women’s working status** |  |  |  |  |  |  |  |  |  |
| Not working | 16.04 (26.12) | 6.26 (18.77) | 64.04 (77.47) | 37.53 (50.04) | 264.15 (279.59) | 231.45 (181.41) | 87.12 (179.75) | 25.02 (106.34) | 0.034 |
| Working | 13.61 (21.61) | 6.26 (13.76) | 43.07 (48.88) | 25.02 (50.04) | 231.45 (141.09) | 200.18 (162.64) | 59.23 (107.29) | 12.51 (58.80) |  |
| P-value | 0.031 |  | <0.001 |  | 0.121 |  | <0.001 |  |  |
| **Women’s BMI** |  |  |  |  |  |  |  |  |  |
| Underweight | 13.81 (22.17) | 6.26 (14.39) | 50.90 (62.50) | 37.53 (47.54) | 205.04 (121.15) | 187.66 (125.11) | 43.95 (83.17) | 12.51 (35.03) | <0.001 |
| Normal weight | 15.85 (27.57) | 6.26 (17.52) | 59.88 (70.25) | 37.53 (56.30) | 241.09 (269.56) | 187.66 (150.13) | 67.42 (152.73) | 15.01 (70.06) |  |
| Overweight | 17.08 (23.97) | 10.01 (22.52) | 61.67 (68.05) | 37.53 (50.04) | 277.88 (219.31) | 250.22 (162.64) | 119.75 (181.62) | 37.53 (177.66) |  |
| Obese | 15.79 (17.52) | 12.51 (23.77) | 76.49 (115.60) | 37.53 (43.79) | 305.23 (375.42) | 250.22 (225.20) | 169.21 (300.54) | 75.07 (237.71) |  |
| P-value | 0.129 |  | 0.157 |  | <0.001 |  | <0.001 |  |  |
| **ANC visit** |  |  |  |  |  |  |  |  |  |
| No ANC | 11.59 (24.30) | 6.26 (12.35) | 55.40 (59.17) | 25.02 (75.07) | 239.67 (133.07) | 237.71 (187.66) | 22.83 (57.51) | 6.26 (15.01) | <0.001 |
| 1‐3 | 16.72 (25.48) | 8.76 (22.52) | 37.53 (43.79) | 37.53 (43.79) | 228.19 (128.34) | 187.66 (187.66) | 69.16 (108.49) | 25.02 (68.81) |  |
| ≥4 | 18.52 (24.85) | 10.13 (23.15) | 71.13 (94.29) | 37.53 (50.04) | 282.66 (332.98) | 250.22 (165.77) | 136.39 (248.77) | 62.55 (175.15) |  |
| P-value | <0.001 |  | <0.001 |  | <0.001 |  | <0.001 |  |  |
| **Husband age** |  |  |  |  |  |  |  |  |  |
| 15-29 | 16.86 (28.05) | 8.76 (22.52) | 56.42 (71.12) | 37.53 (43.79) | 230.38 (186.78) | 190.79 (162.64) | 68.10 (125.66) | 18.77 (68.81) | <0.001 |
| 30-44 | 15.21 (24.35) | 6.26 (17.52) | 63.72 (76.83) | 37.53 (56.30) | 268.88 (296.70) | 225.20 (162.64) | 90.25 (191.02) | 25.02 (118.85) |  |
| 45 or above | 12.67 (18.13) | 6.26 (14.51) | 51.14 (53.89) | 37.53 (50.04) | 282.04 (158.28) | 250.22 (206.43) | 72.56 (130.76) | 12.51 (60.05) |  |
| P-value | 0.051 |  | 0.322 |  | 0.0735 |  | <0.001 |  |  |
| **Husband education** |  |  |  |  |  |  |  |  |  |
| No education | 12.58 (25.43) | 6.26 (12.51) | 44.33 (57.91) | 25.02 (37.53) | 212.03 (135.97) | 187.66 (125.11) | 34.36 (76.39) | 6.26 (23.77) | <0.001 |
| Primary | 15.19 (25.10) | 6.26 (17.52) | 50.70 (47.69) | 37.53 (43.79) | 242.74 (207.46) | 187.66 (187.66) | 55.06 (116.99) | 12.51 (45.04) |  |
| Secondary | 17.34 (23.79) | 10.01 (22.52) | 64.57 (85.75) | 37.53 (56.30) | 239.14 (178.28) | 200.18 (187.66) | 90.36 (142.08) | 25.02 (118.85) |  |
| Higher | 21.41 (27.17) | 12.51 (21.27) | 81.05 (87.09) | 62.55 (55.05) | 301.22 (364.36) | 250.22 (162.64) | 183.29 (300.26) | 125.11 (225.20) |  |
| P-value | <0.001 |  | <0.001 |  | <0.001 |  | <0.001 |  |  |
| **Husband occupation** |  |  |  |  |  |  |  |  |  |
| Farmer | 11.67 (20.30) | 6.26 (12.51) | 48.48 (43.82) | 37.53 (46.29) | 199.32 (119.66) | 187.66 (143.88) | 47.23 (86.61) | 12.51 (47.54) | <0.001 |
| Agriculture | 13.65 (23.67) | 6.26 (14.64) | 50.46 (61.54) | 25.02 (43.79) | 224.10 (139.19) | 187.66 (156.39) | 34.46 (75.06) | 7.51 (23.77) |  |
| Day labor | 12.60 (22.35) | 6.26 (12.45) | 48.0 (264.37) | 25.02 (50.04) | 204.42 (118.97) | 200.18 (125.11) | 37.40 (76.31) | 7.51 (23.77) |  |
| Factory worker | 15.34 (24.53) | 6.26 (16.26) | 58.23 (89.78) | 37.53 (50.04) | 260.92 (147.02) | 250.22 (150.13) | 69.11 (120.57) | 14.39 (56.30) |  |
| Service holder | 25.25 (26.89) | 18.77 (31.28) | 90.31 (110.22) | 62.55 (53.80) | 292.99 (216.45) | 250.22 (225.20) | 189.43 (209.36) | 125.11 (212.69) |  |
| Business | 17.15 (30.30) | 7.51 (17.27) | 54.73 (54.98) | 37.53 (52.55) | 278.77 (333.87) | 250.22 (175.15) | 109.41 (226.75) | 25.02 (143.50) |  |
| Skilled worker | 17.79 (22.87) | 12.51 (22.52) | 66.58 (81.85) | 37.53 (50.04) | 246.33 (284.40) | 193.92 (187.66) | 85.66 (178.74) | 25.02 (106.34) |  |
| Other | 18.55 (38.60) | 6.26 (24.27) | 85.07 (88.00) | 53.17 (75.07) | 269.19 (101.01) | 253.35 (137.62) | 87.09 (121.74) | 25.02 (118.85) |  |
| P-value | <0.001 |  | <0.001 |  | 0.072 |  | <0.001 |  |  |
| **Household size** |  |  |  |  |  |  |  |  |  |
| ≤4 | 14.87 (24.85) | 6.26 (17.77) | 55.40 (74.45) | 37.53 (46.92) | 245.16 (196.23) | 225.20 (187.66) | 82.45 (145.46) | 21.27 (93.83) | 0.166 |
| >4 | 15.68 (25.21) | 7.51 (17.52) | 62.08 (72.56) | 37.53 (55.05) | 265.38 (289.03) | 225.20 (175.15) | 80.27 (175.77) | 18.77 (81.32) |  |
| P-value | 0.450 |  | 0.2583 |  | 0.230 |  | 0.687 |  |  |
| **Wealth index** |  |  |  |  |  |  |  |  |  |
| Poor | 13.07 (23.98) | 6.26 (11.89) | 51.99 (54.81) | 37.53 (43.79) | 212.56 (138.32) | 187.66 (125.11) | 34.63 (74.70) | 7.51 (23.77) | <0.001 |
| Middle | 16.52 (25.89) | 8.13 (17.52) | 52.60 (68.70) | 37.53 (43.79) | 217.03 (136.05) | 187.66 (137.62) | 61.95 (104.26) | 18.77 (56.30) |  |
| Rich | 19.37 (26.18) | 12.51 (21.27) | 67.27 (82.66) | 37.53 (55.05) | 277.09 (296.94) | 250.22 (162.64) | 135.13 (228.96) | 62.55 (187.66) |  |
| P-value | <0.001 |  | 0.025 |  | <0.001 |  | <0.001 |  |  |
| **Birth order** |  |  |  |  |  |  |  |  |  |
| 1 | 18.23 (27.06) | 11.26 (21.27) | 68.73 (80.68) | 50.04 (50.04) | 251.52 (283.74) | 212.69 (187.66) | 100.03 (193.07) | 31.28 (141.37) | 0.1697 |
| 2‐3 | 14.63 (25.26) | 6.26 (18.02) | 51.32 (63.41) | 37.53 (46.92) | 266.70 (240.95) | 225.20 (186.41) | 77.28 (157.55) | 18.77 (83.82) |  |
| ≥4 | 12.42 (20.10) | 6.26 (12.14) | 55.74 (72.16) | 37.53 (49.11) | 259.84 (159.85) | 250.22 (231.45) | 37.88 (87.64) | 7.51 (23.77) |  |
| P-value | <0.001 |  | 0.010 |  | 0.653 |  | <0.001 |  |  |
| **Mass media exposure (TV/radio)** |  |  |  |  |  |  |  |  |  |
| No exposure | 13.83 (25.08) | 6.26 (13.32) | 62.76 (74.71) | 214.04 (127.74) | 214.04 (127.74) | 187.66 (131.36) | 41.42 (82.94) | 10.01 (36.28) | <0.001 |
| Exposure | 17.19 (25.02) | 10.01 (22.52) | 58.85 (72.67) | 37.53 (43.79) | 268.62 (281.95) | 250.22 (162.64) | 107.40 (200.38) | 32.53 (142.62) |  |
| P-value | <0.001 |  | 0.5304 |  | <0.001 |  | <0.001 |  |  |
| **Division** |  |  |  |  |  |  |  |  |  |
| Barisal | 18.49 (28.36) | 7.51 (21.27) | 65.45 (67.90) | 37.53 (67.56) | 262.31 (255.19) | 250.22 (162.64) | 71.95 (151.54) | 18.77 (68.81) | <0.001 |
| Chittagong | 23.59 (28.91) | 12.51 (18.77) | 86.45 (97.89) | 62.55 (62.55) | 311.19 (192.37) | 262.73 (181.41) | 92.04 (149.02) | 25.02 (81.32) |  |
| Dhaka | 11.44 (19.50) | 6.26 (12.51) | 59.31 (60.36) | 37.53 (50.04) | 296.75 (320.65) | 250.22 (150.13) | 111.93 (227.87) | 25.02 (185.16) |  |
| Khulna | 13.34 (22.35) | 7.82 (10.01) | 31.97 (22.18) | 25.02 (30.65) | 187.91 (115.62) | 162.64 (125.11) | 79.00 (107.30) | 25.02 (116.35) |  |
| Mymensingh | - | - | - | - | - | - | - | - |  |
| Rajshahi | 12.74 (24.69) | 6.26 (11.89) | 37.16 (34.72) | 25.02 (37.53) | 192.03 (103.80) | 181.41 (125.11) | 67.51 (98.70) | 18.77 (106.34) |  |
| Rangpur | 10.89 (16.34) | 6.26 (12.26) | 52.03 (75.27) | 25.02 (50.04) | 182.69 (95.45) | 162.64 (125.11) | 52.79 (86.29) | 12.51 (53.80) |  |
| Sylhet | 13.37 (26.46) | 6.26 (15.01) | 85.22 (91.17) | 50.04 (100.09) | 390.55 (515.66) | 312.77 (200.18) | 72.98 (229.71) | 12.51 (36.28) |  |
| P-value | <0.001 |  | <0.001 |  | <0.001 |  | <0.001 |  |  |
| **Place of residence** |  |  |  |  |  |  |  |  |  |
| Urban | 17.26 (26.63) | 6.54 (22.52) | 51.24 (69.90) | 37.53 (50.04) | 274.18 (291.40) | 250.22 (187.66) | 119.86 (217.26) | 37.53 (180.16) | <0.001 |
| Rural | 14.91 (24.62) | 6.26 (17.52) | 65.96 (74.90) | 37.53 (62.55) | 242.90 (226.30) | 200.18 (175.15) | 62.54 (132.87) | 12.51 (58.80) |  |
| P-value | 0.043 |  | 0.009 |  | 0.050 |  | <0.001 |  |  |
| **Religion** |  |  |  |  |  |  |  |  |  |
| Islam | 15.57 (25.52) | 6.26 (17.52) | 58.85 (71.20) | 37.53 (56.30) | 257.71 (236.72) | 225.20 (187.66) | 79.70 (156.63) | 18.77 (81.32) | 0.7421 |
| Others | 13.78 (18.93) | 6.26 (13.76) | 70.43 (90.64) | 37.53 (50.04) | 265.58 (431.03) | 200.18 (100.09) | 95.17 (256.43) | 25.02 (118.85) |  |
| P-value | 0.3410 |  | 0.2277 |  | 0.7732 |  | 0.0931 |  |  |
| **Total** | 15.44 (25.11) | 6.26 (17.52) | 59.91 (73.19) | 37.53 (56.30) | 258.45 (261.05) | 225.20 (187.66) | 80.94 (166.87) | 18.77 (81.32) | <0.001 |

Table 2 shows that the total average self-reported OOP cost for childbirth in 2014 was US$ 80.94 (SD ± 166.87), with significantly higher costs associated with cesarean sections (CS). The average OOP cost for CS in 2014 was US$ 258.45 (SD ± 261.05). In comparison, the average OOP cost for home delivery was US$ 15.44, while institutional normal delivery incurred US$ 59.91, making institutional delivery the second highest in cost. The highest OOP cost per participant (US$ 95.61) was reported among mothers aged 25-34, while the lowest (US$ 66.64) was among younger mothers aged 15-19. Mothers’ education level was significantly associated with OOP expenses during childbirth (P < 0.001), with mothers having higher education spending an average of US$ 191.37 in 2014. Similarly, the husband’s education played an important role in OOP costs, following a similar pattern to that of mothers. Husbands with higher education levels were willing to spend more, with an average of US$ 183.29, and up to US$ 301.22 for CS. The highest OOP cost was incurred by obese mothers, with an average of US$ 169.21, specifically for those who underwent CS (US$ 305.23). Mothers who had four or more ANC visits spent more (US$ 136.39) compared to those who visited less frequently or not at all. The OOP cost for recommended ANC visits (≥4) was US$ 18.52 for home delivery, US$ 71.13 for institutional delivery, and US$ 282.66 for CS. Mothers from wealthier families spent considerably more, with OOP costs for home delivery at US$ 19.37, institutional delivery at US$ 67.27, and CS at US$ 277.09. In 2014, among the 8 divisions in Bangladesh, the average OOP cost was the highest (US$ 111.93) in Dhaka division, though the cost associate with CS (US$ 390.55) was the highest in Sylhet. Families residing in urban areas consistently incurred higher OOP expenses, with an average of US$ 119.86, indicating disparities in access to affordable childbirth services.

Table 3: Factors Associated with Child Delivery Costs in Bangladesh Based on the 2014 BDHS Survey

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Home Delivery | | Institutional Normal Delivery | | Cesarean Section | | Total | |
|  | Coef. (SE) | P-value | Coef. (SE) | P-value | Coef. (SE) | P-value | Coef. (SE) | P-value |
| **Delivery** |  |  |  |  |  |  |  |  |
| Home Delivery |  |  |  |  |  |  | Ref |  |
| Institutional Normal Delivery |  |  |  |  |  |  | 0.55 (0.03) |  |
| Cesarean section |  |  |  |  |  |  | 1.24 (0.02) |  |
| **Women’s age group** |  |  |  |  |  |  |  |  |
| 15‐19 | Ref |  | Ref |  | Ref |  | Ref |  |
| 20‐24 | -0.03 (0.04) |  | 0.10 (0.05) |  | -0.03 (0.03) |  | -0.01 (0.02) |  |
| 25‐34 | 0.02 (0.05) |  | 0.03 (0.06) |  | -0.00 (0.04) |  | 0.01 (0.03) |  |
| 35‐49 | 0.11 (0.06) |  | 0.06 (0.09) |  | 0.01 (0.04) |  | 0.07 (0.04) |  |
| **Women's education** |  |  |  |  |  |  |  |  |
| No education | Ref |  | Ref |  | Ref |  | Ref |  |
| Primary | -0.02 (0.04) |  | -0.10 (0.06) |  | 0.06 (0.04) |  | -0.02 (0.04) |  |
| Secondary | 0.00 (0.05) |  | -0.08 (0.06) |  | 0.04 (0.04) |  | 0.01 (0.04) |  |
| Higher | 0.06 (0.08) |  | -0.05 (0.08) |  | 0.03 (0.06) |  | 0.00 (0.05) |  |
| **Women’s working status** |  |  |  |  |  |  |  |  |
| Not working | Ref |  | Ref |  | Ref |  | Ref |  |
| Working | -0.07 (0.03) |  | -0.08 (0.04) |  | 0.00 (0.03) |  | -0.06 (0.02) |  |
| **Women’s BMI** |  |  |  |  |  |  |  |  |
| Underweight | Ref |  | Ref |  | Ref |  | Ref |  |
| Normal weight | 0.02 (0.03) |  | 0.08 (0.04) |  | 0.04 (0.03) |  | 0.03 (0.02) |  |
| Overweight | 0.06 (0.04) |  | 0.07 (0.05) |  | 0.09 (0.03) |  | 0.07 (0.03) |  |
| Obese | 0.08 (0.07) |  | 0.13 (0.08) |  | 0.08 (0.04) |  | 0.08 (0.04) |  |
| **ANC visit** |  |  |  |  |  |  |  |  |
| No ANC | Ref |  | Ref |  | Ref |  | Ref |  |
| 1‐3 | 0.15 (0.03) |  | -0.06 (0.07) |  | -0.11 (0.05) |  | 0.11 (0.03) |  |
| ≥4 | 0.24 (0.04) |  | 0.04 (0.08) |  | -0.07 (0.05) |  | 0.18 (0.03) |  |
| **Husband age** |  |  |  |  |  |  |  |  |
| 15-29 | Ref |  | Ref |  | Ref |  | Ref |  |
| 30-44 | -0.02 (0.03) |  | 0.05 (0.04) |  | 0.02 (0.03) |  | -0.00 (0.02) |  |
| 45 or above | -0.03 (0.06) |  | 0.02 (0.09) |  | 0.07 (0.05) |  | 0.01 (0.04) |  |
| **Husband education** |  |  |  |  |  |  |  |  |
| No education | Ref |  | Ref |  | Ref |  | Ref |  |
| Primary | 0.01 (0.04) |  | 0.12 (0.06) |  | 0.04 (0.04) |  | 0.03 (0.03) |  |
| Secondary | 0.00 (0.04) |  | 0.13 (0.06) |  | 0.02 (0.04) |  | 0.02 (0.03) |  |
| Higher | 0.12 (0.07) |  | 0.26 (0.07) |  | 0.04 (0.05) |  | 0.09 (0.04) |  |
| **Husband occupation** |  |  |  |  |  |  |  |  |
| Farmer | Ref |  | Ref |  | Ref |  | Ref |  |
| Agriculture | 0.02 (0.05) |  | -0.05 (0.07) |  | -0.01 (0.06) |  | -0.00 (0.04) |  |
| Day labor | 0.02 (0.05) |  | -0.14 (0.07) |  | 0.01 (0.05) |  | -0.00 (0.04) |  |
| Factory worker | 0.02 (0.06) |  | -0.01 (0.07) |  | 0.08 (0.04) |  | 0.02 (0.04) |  |
| Service holder | 0.04 (0.11) |  | -0.06 (0.07) |  | 0.08 (0.05) |  | 0.02 (0.05) |  |
| Business | -0.01 (0.05) |  | -0.07 (0.06) |  | 0.05 (0.03) |  | -0.01 (0.03) |  |
| Skilled worker | 0.03 (0.05) |  | -0.01 (0.06) |  | 0.01 (0.03) |  | 0.01 (0.03) |  |
| Other | 0.05 (0.08) |  | -0.10 (0.12) |  | 0.08 (0.05) |  | 0.02 (0.07) |  |
| **Household size** |  |  |  |  |  |  |  |  |
| ≤4 | Ref |  | Ref |  | Ref |  | Ref |  |
| >4 | 0.06 (0.03) |  | 0.06 (0.04) |  | 0.03 (0.03) |  | 0.05 (0.02) |  |
| **Wealth index** |  |  |  |  |  |  |  |  |
| Poor | Ref |  | Ref |  | Ref |  | Ref |  |
| Middle | -0.00 (0.04) |  | -0.04 (0.05) |  | -0.01 (0.03) |  | 0.00 (0.03) |  |
| Rich | 0.07 (0.05) |  | 0.01 (0.05) |  | 0.01 (0.04) |  | 0.05 (0.03) |  |
| **Birth order** |  |  |  |  |  |  |  |  |
| 1 | Ref |  | Ref |  | Ref |  | Ref |  |
| 2‐3 | -0.09 (0.03) |  | -0.15 (0.05) |  | 0.01 (0.03) |  | -0.07 (0.02) |  |
| ≥4 | -0.13 (0.05) |  | -0.21 (0.08) |  | -0.04 (0.05) |  | -0.12 (0.04) |  |
| **Mass media exposure (TV/radio)** |  |  |  |  |  |  |  |  |
| No exposure | Ref |  | Ref |  | Ref |  | Ref |  |
| Exposure | -0.00 (0.03) |  | -0.07 (0.04) |  | 0.00 (0.03) |  | -0.01 (0.02) |  |
| **Division** |  |  |  |  |  |  |  |  |
| Barisal | Ref |  | Ref |  | Ref |  | Ref |  |
| Chittagong | 0.12 (0.05) |  | 0.15 (0.07) |  | 0.08 (0.05) |  | 0.11 (0.04) |  |
| Dhaka | -0.11 (0.06) |  | 0.05 (0.07) |  | -0.03 (0.04) |  | -0.05 (0.04) |  |
| Khulna | -0.13 (0.05) |  | -0.14 (0.07) |  | -0.17 (0.05) |  | -0.15 (0.04) |  |
| Mymensingh |  |  |  |  |  |  |  |  |
| Rajshahi | -0.10 (0.06) |  | -0.13 (0.08) |  | -0.13 (0.04) |  | -0.12 (0.04) |  |
| Rangpur | -0.15 (0.06) |  | -0.15 (0.08) |  | -0.17 (0.05) |  | -0.15 (0.04) |  |
| Sylhet | -0.04 (0.05) |  | 0.23 (0.08) |  | 0.08 (0.05) |  | 0.02 (0.04) |  |
| **Place of residence** |  |  |  |  |  |  |  |  |
| Urban | Ref |  | Ref |  | Ref |  | Ref |  |
| Rural | 0.02 (0.04) |  | 0.14 (0.04) |  | 0.01 (0.02) |  | 0.04 (0.02) |  |
| **Religion** |  |  |  |  |  |  |  |  |
| Islam | Ref |  | Ref |  | Ref |  | Ref |  |
| Others | 0.07 (0.05) |  | 0.02 (0.05) |  | 0.00 (0.04) |  | 0.03 (0.03) |  |
| N | 2,134 |  | 670 |  | 1042 |  | 3846 |  |
| Mean VIF | 1.84 |  | 2.40 |  | 3.04 |  | 2.04 |  |
| **Adjusted R2** | 9.90% |  | 26.15% |  | 14.13% |  | 55.48% |  |
| **AIC** | 3467.76 |  | 691.7747 |  | 434.6458 |  | 5043.062 |  |
| **BIC** | 3688.724 |  | 867.5586 |  | 627.6528 |  | 5299.508 |  |
| **F value, (Prob > F)** | <0.001 |  | <0.001 |  | <0.001 |  | <0.001 |  |

Table 3 demonstrates that there were several factors associate with OOP cost during child delivery in 2014. From the analysis, we found that, women’s age, education level, background, residing area and husbands’ education and income significantly influence OOP expenditure associated with childbirth. Institutional deliveries and cesarean sections were positively correlated with higher delivery costs, with cesarean sections having the greatest impact. Maternal age, especially in the 35-49 age group, showed a modest positive correlation with costs, particularly for cesarean sections. Education levels also played a significant role, as women with secondary or higher education had increased costs across all delivery modes. The number of ANC visits was directly associated with higher costs, indicating that increased prenatal care leads to higher overall expenses. Household wealth index and urban residency were also significant predictors of higher delivery expenses.

Table 4: Cost Distribution of Child Delivery in Bangladesh (US$) Based on the 2017-18 BDHS Survey

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Home Delivery | | Institutional Normal Delivery | | Cesarean Section | | Total | | P-value |
|  | Mean (SD) | Median (IQR) | Mean (SD) | Median (IQR) | Mean (SD) | Median (IQR) | Mean (SD) | Median (IQR) |  |
| **Age** | 25.07 (5.62) | 24.00 (21.00) | 24.18 (5.48) | 23.00 (20.00) | 25.18 (5.50) | 24.00 (21.00) | 24.96 (5.57) | 24.00 (21.00) | 0.057 |
| **Women’s age group** |  |  |  |  |  |  |  |  |  |
| 15‐19 | 17.13 (18.49) | 11.59 (19.31) | 70.19 (73.91) | 51.50 (51.50) | 227.09 (112.62) | 218.87 (141.62) | 89.76 (114.98) | 38.62 (118.45) | <0.001 |
| 20‐24 | 17.32 (37.14) | 10.30 (17.38) | 74.25 (73.22) | 55.36 (64.37) | 264.12 (156.77) | 257.50 (167.37) | 112.68 (150.53) | 38.62 (182.82) |  |
| 25‐34 | 15.46 (23.43) | 7.72 (16.74) | 64.61 (87.37) | 43.77 (51.50) | 291.07 (275.86) | 257.50 (180.25) | 114.51 (205.52) | 29.90 (172.52) |  |
| 35‐49 | 16.73 (35.79) | 7.72 (16.74) | 66.97 (71.34) | 43.77 (51.50) | 294.40 (205.55) | 257.50 (206.00) | 120.61 (180.65) | 28.32 (186.11) |  |
| P-value | 0.697 |  | 0.539 |  | <0.001 |  | <0.001 |  |  |
| **Women's education** |  |  |  |  |  |  |  |  |  |
| No education | 10.79 (18.03) | 6.44 (10.94) | 60.73 (59.54) | 36.05 (70.81) | 219.24 (139.74) | 199.56 (109.44) | 48.63 (96.45) | 7.78 (26.39) | 0.051 |
| Primary | 13.45 (19.19) | 7.08 (14.16) | 61.21 (58.73) | 38.62 (55.36) | 253.21 (159.27) | 222.09 (180.25) | 63.33 (115.86) | 12.87 (57.94) |  |
| Secondary | 19.60 (40.50) | 12.87 (20.60) | 68.04 (80.37) | 51.50 (51.50) | 263.78 (225.23) | 235.61 (167.37) | 111.71 (177.15) | 38.62 (154.50) |  |
| Higher | 22.67 (21.85) | 16.09 (19.31) | 87.00 (87.21) | 64.37 (83.69) | 297.85 (182.48) | 257.50 (193.12) | 203.99 (191.38) | 193.12 (280.03) |  |
| P-value | <0.001 |  | 0.012 |  | <0.001 |  | <0.001 |  |  |
| **Women’s working status** |  |  |  |  |  |  |  |  |  |
| Not working | 18.09 (36.44) | 10.30 (21.89) | 73.45 (73.17) | 52.79 (64.37) | 284.65 (219.54) | 257.50 (186.69) | 129.37 (187.33) | 51.50 (186.69) | <0.001 |
| Working | 14.90 (22.25) | 7.72 (16.74) | 62.87 (82.90) | 38.62 (43.77) | 241.88 (142.78) | 218.87 (167.37) | 80.49 (125.68) | 20.60 (114.59) |  |
| P-value | 0.012 |  | 0.057 |  | <0.001 |  | <0.001 |  |  |
| **Women’s BMI** |  |  |  |  |  |  |  |  |  |
| Underweight | 12.97 (17.87) | 7.72 (12.87) | 63.52 (55.05) | 38.62 (59.22) | 228.69 (131.55) | 193.12 (154.50) | 69.30 (109.77) | 19.31 (83.69) | <0.001 |
| Normal weight | 16.39 (23.62) | 9.01 (18.02) | 67.34 (68.67) | 45.06 (51.50) | 255.80 (172.51) | 247.20 (167.37) | 87.78 (138.63) | 25.75 (121.67) |  |
| Overweight | 18.81 (43.13) | 9.42 (22.53) | 75.89 (102.57) | 51.50 (51.50) | 281.78 (174.21) | 257.50 (231.75) | 138.36 (174.25) | 64.37 (218.87) |  |
| Obese | 22.24 (53.02) | 12.87 (19.96) | 73.49 (59.11) | 60.51 (55.36) | 308.16 (294.59) | 257.50 (193.12) | 192.91 (261.97) | 128.75 (231.75) |  |
| P-value | 0.002 |  | 0.403 |  | <0.001 |  | <0.001 |  |  |
| **ANC visit** |  |  |  |  |  |  |  |  |  |
| No ANC | 10.47 (15.69) | 6.44 (11.59) | 62.03 (50.83) | 51.50 (79.18) | 263.97 (106.32) | 257.50 (128.75) | 26.35 (62.89) | 6.94 (17.38) | <0.001 |
| 1‐3 | 16.93 (36.70) | 9.01 (15.45) | 68.16 (67.78) | 51.50 (51.50) | 242.76 (128.65) | 231.75 (128.75) | 77.40 (117.74) | 21.89 (96.56) |  |
| ≥4 | 18.94 (24.96) | 12.87 (20.60) | 71.42 (84.89) | 51.50 (51.50) | 285.30 (225.72) | 257.50 (220.81) | 155.23 (203.37) | 84.33 (238.19) |  |
| P-value | <0.001 |  | 0.724 |  | <0.001 |  | <0.001 |  |  |
| **Husband age** |  |  |  |  |  |  |  |  |  |
| 15-29 | 16.38 (35.90) | 10.30 (15.45) | 70.98 (70.48) | 51.50 (47.38) | 239.21 (134.33) | 218.87 (167.37) | 89.28 (125.82) | 25.75 (121.02) | <0.001 |
| 30-44 | 17.23 (29.35) | 8.37 (18.02) | 70.98 (82.42) | 51.50 (64.37) | 282.65 (214.19) | 257.50 (212.44) | 122.87 (182.53) | 38.62 (184.11) |  |
| 45 or above | 13.88 (20.92) | 6.44 (18.01) | 59.96 (67.31) | 38.62 (38.62) | 303.93 (268.10) | 257.50 (206.00) | 110.98 (200.42) | 25.75 (154.50) |  |
| P-value | 0.339 |  | 0.578 |  | <0.001 |  | <0.001 |  |  |
| **Husband education** |  |  |  |  |  |  |  |  |  |
| No education | 12.34 (16.84) | 6.44 (13.52) | 59.92 (68.01) | 38.62 (54.07) | 251.46 (176.36) | 57.16 (115.89) | 12.87 (38.43) | 15.75 (30.20) | <0.001 |
| Primary | 15.75 (30.20) | 7.72 (16.74) | 64.80 (86.19) | 38.62 (51.50) | 238.77 (136.20) | 206.00 (141.62) | 72.74 (117.84) | 19.31 (83.69) |  |
| Secondary | 19.87 (40.60) | 12.87 (19.31) | 70.15 (62.47) | 51.50 (51.50) | 265.73 (194.82) | 257.50 (167.37) | 116.92 (165.72) | 38.62 (180.25) |  |
| Higher | 20.10 (19.96) | 12.87 (19.31) | 84.41 (89.59) | 64.37 (70.81) | 303.56 (239.60) | 257.50 (193.12) | 206.20 (229.50) | 167.37 (283.25) |  |
| P-value | <0.001 |  | 0.044 |  | <0.001 |  | <0.001 |  |  |
| **Husband occupation** |  |  |  |  |  |  |  |  |  |
| Not working | 15.98 (24.45) | 6.44 (12.36) | 92.27 (83.41) | 64.37 (115.87) | 287.21 (157.72) | 244.62 (257.50) | 146.61 (158.19) | 96.69 (218.87) | 0.008 |
| Farmer | 15.83 (29.61) | 7.72 (16.74) | 61.46 (52.77) | 45.06 (64.37) | 236.90 (165.95) | 193.12 (150.64) | 73.96 (124.57) | 19.31 (96.56) |  |
| Agriculture | 12.41 (15.10) | 7.08 (17.83) | 100.78 (163.08) | 64.37 (75.96) | 212.41 (115.96) | 193.12 (148.06) | 55.91 (104.52) | 12.87 (47.64) |  |
| Day labor | 13.59 (18.74) | 7.08 (14.16) | 61.35 (70.45) | 45.06 (38.62) | 243.25 (136.79) | 231.75 (141.62) | 62.95 (109.07) | 13.00 (57.94) |  |
| Factory worker | 21.08 (55.73) | 11.59 (21.89) | 68.31 (59.51) | 64.37 (64.37) | 281.98 (212.69) | 257.50 (167.37) | 121.61 (179.90) | 45.06 (180.25) |  |
| Service holder | 20.30 (16.85) | 16.74 (21.01) | 89.65 (97.33) | 64.37 (96.56) | 312.77 (187.24) | 270.37 (193.12) | 235.72 (200.65) | 218.87 (270.37) |  |
| Business | 16.94 (22.52) | 10.30 (16.99) | 71.00 (68.71) | 53.43 (64.37) | 280.64 (237.66) | 257.50 (179.71) | 129.44 (195.07) | 51.50 (180.25) |  |
| Skilled worker | 18.24 (32.87) | 11.59 (19.31) | 66.30 (70.57) | 38.62 (43.77) | 264.60 (197.14) | 244.62 (167.37) | 110.96 (164.45) | 38.62 (168.66) |  |
| Other | 11.94 (14.84) | 6.44 (11.46) | 14.16 (1.82) | 14.16 (2.57) | 241.41 (76.80) | 270.37 (96.56) | 55.86 (97.70) | 12.87 (19.31) |  |
| P-value | 0.022 |  | 0.064 |  | 0.003 |  | <0.001 |  |  |
| **Household size** |  |  |  |  |  |  |  |  |  |
| ≤4 | 17.58 (38.35) | 9.98 (21.24) | 65.01 (55.86) | 51.50 (51.50) | 268.39 (241.71) | 256.02 (167.37) | 115.73 (188.42) | 38.62 (182.82) | 0.628 |
| >4 | 16.30 (27.49) | 8.37 (16.74) | 71.72 (84.36) | 51.50 (51.50) | 274.12 (178.79) | 257.50 (180.25) | 108.81 (158.98) | 32.19 (172.52) |  |
| P-value | 0.357 |  | 0.246 |  | 0.590 |  | 0.187 |  |  |
| **Wealth index** |  |  |  |  |  |  |  |  |  |
| Poor | 14.31 (31.41) | 7.47 (15.45) | 60.30 (63.29) | 38.62 (42.49) | 238.27 (174.74) | 206.00 (125.53) | 59.81 (116.17) | 12.87 (45.19) | <0.001 |
| Middle | 17.70 (19.68) | 12.87 (19.31) | 77.31 (96.93) | 64.37 (61.16) | 234.78 (130.73) | 231.75 (173.81) | 96.42 (128.21) | 38.62 (119.74) |  |
| Rich | 21.70 (36.05) | 12.87 (19.31) | 73.82 (76.69) | 51.50 (64.37) | 294.90 (222.08) | 257.50 (206.00) | 171.60 (207.28) | 128.75 (231.75) |  |
| P-value | <0.001 |  | 0.029 |  | <0.001 |  | <0.001 |  |  |
| **Birth order** |  |  |  |  |  |  |  |  |  |
| 1 | 20.57 (39.05) | 12.87 (19.31) | 72.90 (71.72) | 51.50 (60.51) | 264.11 (164.37) | 257.50 (167.37) | 131.59 (159.42) | 64.37 (189.26) | 0.074 |
| 2‐3 | 15.01 (22.55) | 7.72 (16.74) | 68.61 (83.81) | 45.06 (51.50) | 281.15 (236.36) | 257.50 (206.00) | 108.38 (183.37) | 25.75 (160.42) |  |
| ≥4 | 15.15 (36.54) | 6.44 (13.52) | 59.63 (67.00) | 38.62 (43.77) | 264.34 (143.24) | 257.50 (170.59) | 56.39 (108.44) | 12.87 (35.41) |  |
| P-value | <0.001 |  | 0.339 |  | 0.233 |  | <0.001 |  |  |
| **Mass media exposure (TV/radio)** |  |  |  |  |  |  |  |  |  |
| No exposure | 14.95 (32.11) | 7.72 (16.74) | 70.59 (90.86) | 51.50 (51.50) | 267.96 (152.59) | 257.50 (173.81) | 69.11 (123.39) | 15.45 (57.94) | 0.843 |
| Exposure | 18.36 (29.71) | 12.87 (20.08) | 69.24 (68.91) | 51.50 (51.50) | 273.35 (211.73) | 257.50 (167.37) | 135.42 (185.59) | 64.37 (206.00) |  |
| P-value | 0.007 |  | 0.811 |  | 0.665 |  | <0.001 |  |  |
| **Division** |  |  |  |  |  |  |  |  |  |
| Barisal | 17.52 (20.74) | 10.30 (21.89) | 86.43 (84.39) | 64.37 (77.25) | 349.26 (335.12) | 321.87 (154.50) | 117.61 (228.53) | 25.75 (185.40) | <0.001 |
| Chittagong | 21.03 (23.76) | 12.87 (19.31) | 89.63 (90.36) | 64.37 (64.37) | 320.68 (156.09) | 283.25 (160.94) | 117.48 (158.67) | 38.62 (180.25) |  |
| Dhaka | 22.15 (66.46) | 12.87 (21.89) | 77.63 (62.79) | 64.37 (69.52) | 299.25 (244.58) | 257.50 (206.00) | 153.97 (215.04) | 64.37 (244.62) |  |
| Khulna | 16.67 (17.03) | 12.87 (19.31) | 69.07 (113.88) | 38.62 (38.62) | 203.78 (96.90) | 193.12 (128.75) | 110.60 (118.95) | 64.37 (167.37) |  |
| Mymensingh | 12.27 (15.96 | 7.72 (12.87) | 53.80 (53.20) | 38.62 (45.06) | 258.85 (216.49) | 257.50 (141.62) | 86.46 (158.30) | 19.31 (122.31) |  |
| Rajshahi | 14.81 (25.21 | 6.44 (18.02) | 47.50 (44.45) | 34.12 (41.20) | 193.75 (107.45) | 180.25 (128.75) | 89.31 (109.69) | 38.62 (146.77) |  |
| Rangpur | 15.33 (29.73) | 7.72 (16.74) | 47.82 (39.52) | 36.37 (45.06) | 219.24 (120.73) | 193.12 (128.75) | 86.29 (116.62) | 25.75 (121.02) |  |
| Sylhet | 12.95 (18.93) | 6.44 (13.71) | 75.53 (80.01) | 51.50 (64.37) | 345.23 (182.74) | 321.87 (231.75) | 110.59 173.42) | 24.46 (126.82) |  |
| P-value | <0.001 |  | <0.001 |  | <0.001 |  | <0.001 |  |  |
| **Place of residence** |  |  |  |  |  |  |  |  |  |
| Urban | 17.30 (23.01) | 11.59 (18.73) | 63.99 (68.58) | 38.62 (51.50) | 286.70 (256.48) | 257.50 (231.75) | 144.09 (214.15) | 64.37 (213.72) | <0.001 |
| Rural | 16.45 (33.24) | 7.72 (16.74) | 73.41 (81.70) | 51.50 (64.37) | 260.53 (140.30) | 257.50 (154.50) | 93.60 (135.55) | 25.75 (135.19) |  |
| P-value | 0.559 |  | 0.083 |  | 0.009 |  | <0.001 |  |  |
| **Religion** |  |  |  |  |  |  |  |  |  |
| Islam | 16.79 (31.33) | 9.01 (17.65) | 67.87 (69.32) | 51.50 (51.50) | 276.16 (208.41) | 257.50 (193.12) | 110.46 (171.28) | 32.19 (172.52) | <0.001 |
| Others | 14.83 (25.06) | 6.44 (13.52) | 83.23 (118.61) | 52.79 (64.37) | 235.86 (108.49) | 231.75 (128.75) | 115.54 (133.02) | 64.37 (182.82) |  |
| P-value | 0.443 |  | 0.062 |  | 0.017 |  | 0.557 |  | <0.001 |
| **Total** | 16.67 (30.96) | 9.01 (17.12 | 69.69 (76.89) | 51.50 (51.50) | 272.27 (201.26) | 257.50 (167.37) | 110.89 (168.38) | 33.47 (172.52) |  |

Table 4 shows that the total average self-reported OOP cost for childbirth in 2017-18 was US$ 110.89 (SD ± 168.38), with significantly higher costs associated with cesarean sections (CS). The average OOP cost for CS was US$ 272.27 (SD ± 201.26). Home deliveries incurred the lowest cost, averaging US$ 16.67, while institutional normal deliveries averaged US$ 69.69. The highest OOP cost per participant was observed among mothers aged 35-49 years, with an average of US$ 120.61, while younger mothers aged 15-19 had the lowest costs at US$ 89.76. Education level remained a significant factor, with mothers holding higher education spending an average of US$ 203.99. Husbands' education levels also significantly influenced expenses; those with higher education spent an average of US$ 206.20, with up to US$ 303.56 for CS. Obese mothers incurred the highest costs, averaging US$ 192.91, particularly for CS (US$ 308.16). Mothers attending four or more ANC visits spent substantially more (US$ 155.23) than those with fewer visits. The OOP costs for recommended ANC visits (≥4) were US$ 18.94 for home deliveries, US$ 71.42 for institutional deliveries, and US$ 285.30 for CS. Families from wealthier households had higher expenditures, with home deliveries at US$ 21.70, institutional deliveries at US$ 73.82, and CS at US$ 294.90. In 2017-18, the average OOP cost for childbirth was the highest in Dhaka (US$ 153.97); however, the expenditure for CS was the highest (US$ 349.26) in Barisal. Urban residents consistently incurred higher OOP costs, averaging US$ 144.09, highlighting persistent disparities in childbirth expenses

Table 5: Factors Associated with Child Delivery Costs in Bangladesh Based on the 2017 BDHS Survey

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Home Delivery | Institutional Normal Delivery | Cesarean Section | Total |
|  | Coef. (SE) | Coef. (SE) | Coef. (SE) | Coef. (SE) |
| **Delivery** |  |  |  |  |
| Home Delivery |  |  |  | Ref |
| Institutional Normal Delivery |  |  |  | 0.71 0.02 |
| Cesarean section |  |  |  | 1.32 0.02 |
| **Women’s age group** |  |  |  |  |
| 15‐19 | Ref | Ref | Ref | Ref |
| 20‐24 | 0.06 0.04 | -0.02 0.04 | 0.01 0.02 | 0.01 0.02 |
| 25‐34 | 0.09 0.06 | -0.09 0.05 | -0.01 0.03 | 0.02 0.03 |
| 35‐49 | 0.14 0.07\*\* | -0.09 0.07 | 0.03 0.03 | 0.06 0.03 |
| **Women's education** |  |  |  |  |
| No education | Ref | Ref | Ref | Ref |
| Primary | 0.05 0.05 | -0.07 0.08 | 0.05 0.06 | 0.03 0.04 |
| Secondary | 0.16 0.05\*\*\* | -0.06 0.08 | 0.10 0.06 | 0.11 0.04 |
| Higher | 0.22 0.07\*\*\* | 0.03 0.09 | 0.13 0.06 | 0.16 0.04 |
| **Women’s working status** |  |  |  |  |
| Not working | Ref | Ref | Ref | Ref |
| Working | -0.03 0.03 | -0.02 0.03 | -0.01 0.02 | -0.02 0.02 |
| **Women’s BMI** |  |  |  |  |
| Underweight | Ref | Ref | Ref | Ref |
| Normal weight | 0.03 0.04 | -0.01 0.04 | 0.02 0.02 | 0.03 0.02 |
| Overweight | 0.04 0.04 | -0.02 0.04 | 0.05 0.03 | 0.04 0.03 |
| Obese | 0.06 0.06 | -0.02 0.07 | 0.05 0.03 | 0.05 0.03 |
| **ANC visit** |  |  |  |  |
| No ANC | Ref | Ref | Ref | Ref |
| 1‐3 | 0.14 0.04\*\*\* | -0.02 0.09 | -0.07 0.05 | 0.15 0.04 |
| ≥4 | 0.17 0.05\*\*\* | -0.02 0.09 | -0.03 0.05 | 0.17 0.04 |
| **Husband age** |  |  |  |  |
| 15-29 | Ref | Ref | Ref | Ref |
| 30-44 | 0.07 0.04 | 0.01 0.03 | 0.01 0.02 | 0.03 0.02 |
| 45 or above | -0.00 0.07 | 0.04 0.07 | 0.01 0.04 | -0.01 0.04 |
| **Husband education** |  |  |  |  |
| No education | Ref | Ref | Ref | Ref |
| Primary | 0.02 0.04 | -0.03 0.06 | -0.01 0.03 | 0.03 0.03 |
| Secondary | 0.05 0.04 | 0.03 0.06 | -0.03 0.03 | 0.04 0.03 |
| Higher | 0.04 0.06 | 0.06 0.07 | 0.00 0.04 | 0.05 0.03 |
| **Husband occupation** |  |  |  |  |
| Not working | Ref | Ref | Ref | Ref |
| Farmer | 0.43 0.30 | -0.12 0.11 | 0.03 0.06 | 0.05 0.12 |
| Agriculture | 0.46 0.30 | -0.01 0.13 | 0.00 0.07 | 0.06 0.12 |
| Day labor | 0.49 0.30 | -0.18 0.11 | 0.06 0.07 | 0.08 0.11 |
| Factory worker | 0.57 0.31 | -0.12 0.11 | 0.07 0.06 | 0.13 0.11 |
| Service holder | 0.48 0.31 | -0.16 0.11 | 0.06 0.06 | 0.08 0.11 |
| Business | 0.50 0.30 | -0.15 0.10 | 0.04 0.06 | 0.08 0.11 |
| Skilled worker | 0.52 0.30 | -0.16 0.11 | 0.03 0.06 | 0.08 0.11 |
| Other | 0.31 0.35 | -0.70 0.13 | -0.12 0.08 | -0.13 0.17 |
| **Household size** |  |  |  |  |
| ≤4 | Ref | Ref | Ref | Ref |
| >4 | -0.01 0.03 | -0.04 0.03 | -0.00 0.02 | -0.02 0.02 |
| **Wealth index** |  |  |  |  |
| Poor | Ref | Ref | Ref | Ref |
| Middle | 0.08 0.04\* | 0.09 0.05 | -0.04 0.02 | 0.05 0.02 |
| Rich | 0.09 0.04\* | 0.07 0.04 | 0.01 0.02 | 0.06 0.02 |
| **Birth order** |  |  |  |  |
| 1 | Ref | Ref | Ref | Ref |
| 2‐3 | -0.20 0.04\*\*\* | -0.01 0.04 | 0.01 0.02 | -0.09 0.02 |
| ≥4 | -0.19 0.06\*\*\* | -0.04 0.06 | -0.01 0.05 | -0.09 0.04 |
| **Mass media exposure (TV/radio)** |  |  |  |  |
| No exposure | Ref | Ref | Ref | Ref |
| Exposure | 0.03 0.03 | -0.04 0.03 | -0.02 0.02 | 0.01 0.02 |
| **Division** |  |  |  |  |
| Barisal | Ref | Ref | Ref | Ref |
| Chittagong | 0.07 0.05 | 0.03 0.07 | -0.03 0.02 | 0.03 0.03 |
| Dhaka | -0.08 0.06 | 0.02 0.07 | -0.12 0.03 | -0.07 0.04 |
| Khulna | 0.00 0.06 | -0.11 0.07 | -0.20 0.03 | -0.11 0.03 |
| Mymensingh | -0.13 0.06\*\*\* | -0.19 0.08 | -0.13 0.03 | -0.14 0.04 |
| Rajshahi | -0.25 0.06\*\* | -0.26 0.08 | -0.25 0.03 | -0.24 0.04 |
| Rangpur | -0.15 0.07\*\*\* | -0.23 0.07 | -0.21 0.03 | -0.18 0.04 |
| Sylhet | -0.18 0.06\*\*\* | -0.07 0.08 | -0.00 0.03 | -0.12 0.04 |
| **Place of residence** |  |  |  |  |
| Urban | Ref | Ref | Ref | Ref |
| Rural | -0.03 0.04 | 0.11 0.03 | 0.02 0.02 | 0.02 0.02 |
| **Religion** |  |  |  |  |
| Islam | Ref | Ref | Ref | Ref |
| Others | -0.04 0.06 | 0.04 0.05 | -0.04 0.02 | -0.02 0.03 |
| N | 2,352 | 815 | 1599 | 4,766 |
| Mean VIF | 7.35 | 4.13 | 6.03 | 4.91 |
| **Adjusted R2** | 12.21% | 15.72% | 14.15% | 67.30% |
| **AIC** | 4149.621 | 778.732 | 476.6751 | 6380.039 |
| **BIC** | 4385.905 | 971.5627 | 697.1376 | 6658.218 |
| **F value, (Prob > F)** | <0.001 | <0.001 | <0.001 | <0.001 |

From Table 5, we can see that Cesarean sections continued to drive up delivery costs, with a notable increase compared to other delivery modes. Younger mothers (aged 15-19) incurred the least costs, while older mothers, particularly those aged 35-49, saw increased expenses. Education beyond primary level and four or more ANC visits were significant predictors of higher delivery costs. The wealth index showed that being in the rich category was associated with higher delivery costs. Urban residency and mass media exposure were linked with increased expenses.

Table 6: Cost Distribution of Child Delivery in Bangladesh (US$) Based on the 2022 BDHS Survey

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Home Delivery | | Normal Delivery | | Cesarean Section | | Total | | P-value |
|  | Mean (SD) | Median (IQR) | Mean (SD) | Median (IQR) | Mean (SD) | Median (IQR) | Mean (SD) | Median (IQR) |  |
| **Age** |  |  | 25.32 5.50 | 25.00 21.00 | 25.79 5.61 | 25.00 21.00 | 25.65 5.58 | 25.00 21.00 | 0.030 |
| **Women’s age group** |  |  |  |  |  |  |  |  |  |
| 15‐19 |  |  | 88.26 (111.14) | 58.96 (82.54) | 248.91 (129.90) | 235.82 (141.49) | 196.73 (145.08) | 176.87 (212.24) | 0.003 |
| 20‐24 |  |  | 96.22 (132.04) | 58.96 (82.54) | 268.16 (144.34) | 235.82 (176.87) | 215.86 (161.38) | 200.45 (200.45) |  |
| 25‐34 |  |  | 92.97 (120.02) | 58.96 (82.54) | 306.52 (178.40) | 294.78 (176.87) | 244.27 (190.14) | 235.82 (259.40) |  |
| 35‐49 |  |  | 91.40 (108.97) | 58.96 (82.54) | 301.54 (189.43) | 259.40 (176.87) | 243.35 (195.10) | 235.82 (259.40) |  |
| P-value |  |  | 0.922 |  | <0.001 |  | <0.001 |  |  |
| **Women's education** |  |  |  |  |  |  |  |  |  |
| No education |  |  | 67.65 (70.68) | 41.27 53.06 | 248.11 164.59 | 235.82 141.49 | 167.16 158.65 | 117.91 194.55 | 0.648 |
| Primary |  |  | 88.01 115.34 | 58.96 70.75 | 272.86 167.06 | 235.82 176.87 | 199.81 174.02 | 176.87 235.82 |  |
| Secondary |  |  | 89.80 122.70 | 58.96 82.54 | 272.12 156.05 | 235.82 176.87 | 217.18 168.95 | 188.66 200.45 |  |
| Higher |  |  | 116.74 128.49 | 70.75 70.75 | 318.47 180.03 | 294.78 212.24 | 277.54 189.08 | 235.82 212.24 |  |
| P-value |  |  | 0.024 |  | <0.001 |  | <0.001 |  |  |
| **Women’s working status** |  |  |  |  |  |  |  |  |  |
| Not working |  |  | 93.89 113.04 | 58.96 82.54 | 286.57 159.36 | 235.82 176.87 | 230.06 171.42 | 212.24 229.93 | 0.828 |
| Working |  |  | 89.71 146.06 | 53.06 53.06 | 279.15 193.69 | 235.82 176.87 | 220.40 200.37 | 176.87 224.03 |  |
| P-value |  |  | 0.220 |  | 0.404 |  | 0.665 |  |  |
| **Women’s BMI** |  |  |  |  |  |  |  |  |  |
| Underweight |  |  | 104.14 124.89 | 58.96 88.43 | 269.91 133.59 | 235.82 176.87 | 207.96 152.92 | 176.87 247.61 | 0.070 |
| Normal weight |  |  | 104.50 146.57 | 58.96 82.54 | 270.48 153.12 | 235.82 176.87 | 215.15 169.96 | 176.87 212.24 |  |
| Overweight |  |  | 83.06 86.82 | 58.96 70.75 | 281.41 164.12 | 235.82 176.87 | 229.52 171.62 | 224.03 194.55 |  |
| Obese |  |  | 89.80 116.46 | 58.96 76.64 | 292.10 173.47 | 235.82 176.87 | 234.11 183.62 | 212.24 224.03 |  |
| P-value |  |  | 0.283 |  | 0.082 |  | 0.047 |  |  |
| **ANC visit** |  |  |  |  |  |  |  |  |  |
| No ANC |  |  | 83.41 96.98 | 47.16 94.33 | 248.76 138.03 | 235.82 129.70 | 168.16 145.22 | 141.49 229.93 | 0.439 |
| 1‐3 |  |  | 85.55 112.68 | 58.96 58.96 | 269.03 162.84 | 235.82 176.87 | 207.79 171.42 | 176.87 218.13 |  |
| ≥4 |  |  | 102.85 130.60 | 58.96 82.54 | 299.37 169.04 | 259.40 176.87 | 249.53 181.54 | 235.82 235.82 |  |
| P-value |  |  | 0.085 |  | <0.001 |  | <0.001 |  |  |
| **Place of delivery** |  |  |  |  |  |  |  |  |  |
| Public facility |  |  | 71.37 107.10 | 47.16 47.16 | 239.86 199.46 | 176.87 194.55 | 133.13 168.57 | 70.75 141.49 | 0.914 |
| Private/NGO facility |  |  | 122.53 131.22 | 82.54 82.54 | 292.50 159.37 | 247.61 176.87 | 263.19 167.65 | 235.82 200.45 |  |
| P-value |  |  | <0.001 |  | <0.001 |  | <0.001 |  |  |
| **Husband age** |  |  |  |  |  |  |  |  |  |
| 15-29 |  |  | 82.69 97.91 | 58.96 58.96 | 255.86 143.06 | 235.82 176.87 | 198.66 153.29 | 176.87 224.03 | 0.031 |
| 30-44 |  |  | 101.16 136.59 | 58.96 82.54 | 296.57 172.89 | 259.40 176.87 | 242.58 185.51 | 235.82 235.82 |  |
| 45 or above |  |  | 78.17 76.04 | 58.96 64.85 | 309.61 187.51 | 294.78 212.24 | 232.14 192.97 | 212.24 282.99 |  |
| P-value |  |  | 0.048 |  | <0.001 |  | <0.001 |  |  |
| **Husband education** |  |  |  |  |  |  |  |  |  |
| No education |  |  | 68.46 65.26 | 50.11 53.06 | 289.52 206.58 | 235.82 176.87 | 197.63 196.35 | 165.07 235.82 | 0.116 |
| Primary |  |  | 83.97 114.55 | 58.96 64.85 | 254.86 136.58 | 235.82 159.18 | 193.74 152.88 | 176.87 212.24 |  |
| Secondary |  |  | 94.75 112.94 | 58.96 82.54 | 281.15 162.93 | 235.82 176.87 | 225.85 172.33 | 200.45 188.66 |  |
| Higher |  |  | 122.71 164.76 | 58.96 76.64 | 311.41 174.93 | 294.78 224.03 | 273.46 188.68 | 235.82 212.24 |  |
| P-value |  |  | <0.001 |  | <0.001 |  | <0.001 |  |  |
| **Husband occupation** |  |  |  |  |  |  |  |  |  |
| Not working |  |  | 100.78 89.40 | 70.75 82.54 | 330.99 237.16 | 259.40 176.87 | 259.29 228.88 | 188.66 235.82 | 0.159 |
| Farmer |  |  | 87.18 128.55 | 58.96 58.96 | 233.82 133.21 | 235.82 141.49 | 191.73 147.44 | 176.87 165.07 |  |
| Agriculture |  |  | 81.81 96.17 | 58.96 41.27 | 240.06 127.59 | 235.82 117.91 | 180.90 139.59 | 176.87 176.87 |  |
| Day labor |  |  | 86.38 135.72 | 53.06 58.96 | 261.10 168.47 | 235.82 153.28 | 195.18 178.16 | 176.87 188.66 |  |
| Factory worker |  |  | 104.61 132.32 | 58.96 82.54 | 287.81 142.67 | 259.40 165.07 | 236.48 162.21 | 235.82 212.24 |  |
| Service holder |  |  | 121.71 152.44 | 70.75 70.75 | 334.56 188.33 | 294.78 218.13 | 296.92 199.60 | 294.78 259.40 |  |
| Business |  |  | 94.93 122.27 | 70.75 82.54 | 302.57 182.77 | 259.40 176.87 | 244.70 192.12 | 235.82 235.82 |  |
| Skilled worker |  |  | 79.57 94.12 | 58.96 53.06 | 269.25 153.98 | 235.82 176.87 | 204.85 163.48 | 176.87 224.03 |  |
| Other |  |  | 103.44 119.24 | 58.96 70.75 | 229.36 108.35 | 235.82 153.28 | 186.08 125.91 | 170.97 218.13 |  |
| P-value |  |  | 0.346 |  | <0.001 |  | <0.001 |  |  |
| **Household size** |  |  |  |  |  |  |  |  |  |
| ≤4 |  |  | 86.81 106.48 | 58.96 82.54 | 279.17 168.40 | 235.82 176.87 | 225.11 176.19 | 200.45 200.45 | 0.997 |
| >4 |  |  | 95.88 126.37 | 58.96 82.54 | 288.19 165.51 | 235.82 176.87 | 229.66 178.16 | 212.24 224.03 |  |
| P-value |  |  | 0.281 |  | 0.223 |  | 0.494 |  |  |
| **Wealth index** |  |  |  |  |  |  |  |  |  |
| Poor |  |  | 77.94 89.89 | 58.96 64.85 | 258.96 152.79 | 235.82 176.87 | 190.43 158.96 | 176.87 188.66 | 0.690 |
| Middle |  |  | 79.85 75.54 | 58.96 82.54 | 274.99 159.24 | 235.82 176.87 | 214.37 165.53 | 188.66 212.24 |  |
| Rich |  |  | 114.39 156.84 | 69.57 82.54 | 301.94 173.69 | 271.19 176.87 | 256.76 187.74 | 235.82 235.82 |  |
| P-value |  |  | <0.001 |  | <0.001 |  | <0.001 |  |  |
| **Birth order** |  |  |  |  |  |  |  |  |  |
| 1 |  |  | 97.35 117.64 | 58.96 82.54 | 279.28 164.26 | 235.82 176.87 | 227.57 173.12 | 200.45 194.55 | 0.317 |
| 2‐3 |  |  | 88.60 127.13 | 58.96 76.64 | 288.97 168.48 | 235.82 176.87 | 232.45 181.83 | 212.24 235.82 |  |
| ≥4 |  |  | 95.47 102.27 | 58.96 82.54 | 296.62 167.06 | 277.09 176.87 | 202.33 172.52 | 176.87 235.82 |  |
| P-value |  |  | 0.564 |  | 0.316 |  | 0.082 |  |  |
| **Mass media exposure (TV/radio)** |  |  |  |  |  |  |  |  |  |
| No exposure |  |  | 86.47 112.62 | 58.96 64.85 | 235.82 176.87 | 235.82 176.87 | 197.35 170.34 | 176.87 229.93 | 0.155 |
| Exposure |  |  | 97.52 125.50 | 58.96 82.54 | 293.27 166.76 | 247.61 176.87 | 242.61 178.98 | 235.82 235.82 |  |
| P-value |  |  | 0.165 |  | <0.001 |  | < 0.001 |  |  |
| **Division** |  |  |  |  |  |  |  |  |  |
| Barisal |  |  | 112.78 114.29 | 58.96 82.54 | 324.05 181.28 | 294.78 153.28 | 270.58 190.42 | 235.82 206.34 | <0.001 |
| Chittagong |  |  | 104.58 86.44 | 76.64 67.80 | 327.22 163.37 | 294.78 117.91 | 230.16 174.62 | 212.24 271.19 |  |
| Dhaka |  |  | 121.85 215.19 | 58.96 82.54 | 304.19 173.67 | 259.40 153.28 | 261.12 199.76 | 235.82 235.82 |  |
| Khulna |  |  | 70.95 107.76 | 41.27 53.06 | 243.67 162.45 | 235.82 153.28 | 207.23 167.98 | 176.87 165.07 |  |
| Mymensingh |  |  | 69.52 86.14 | 47.16 58.96 | 284.17 138.54 | 259.40 176.87 | 231.63 157.55 | 235.82 235.82 |  |
| Rajshahi |  |  | 73.57 68.77 | 58.96 47.16 | 226.66 119.92 | 212.24 153.28 | 190.56 127.75 | 176.87 141.49 |  |
| Rangpur |  |  | 61.72 64.96 | 41.27 35.37 | 242.08 129.06 | 235.82 123.81 | 188.22 140.55 | 176.87 188.66 |  |
| Sylhet |  |  | 103.60 132.62 | 58.96 82.54 | 367.71 216.97 | 353.73 235.82 | 246.13 225.36 | 188.66 294.78 |  |
| P-value |  |  | <0.001 |  | <0.001 |  | <0.001 |  |  |
| **Place of residence** |  |  |  |  |  |  |  |  |  |
| Urban |  |  | 100.39 138.79 | 58.96 82.54 | 297.11 172.38 | 271.19 176.87 | 243.96 185.77 | 235.82 235.82 | 0.491 |
| Rural |  |  | 89.12 109.45 | 58.96 82.54 | 277.30 162.15 | 235.82 176.87 | 218.42 171.53 | 188.66 212.24 |  |
| P-value |  |  | 0.169 |  | 0.006 |  | <0.001 |  |  |
| **Religion** |  |  |  |  |  |  |  |  |  |
| Islam |  |  | 95.32 126.06 | 58.96 82.54 | 283.33 167.24 | 235.82 176.87 | 227.67 178.20 | 200.45 212.24 | 0.048 |
| Others |  |  | 74.32 54.61 | 58.96 70.75 | 300.31 159.87 | 282.99 153.28 | 232.18 171.78 | 235.82 212.32 |  |
| P-value |  |  | 0.093 |  | 0.135 |  | 0.656 |  |  |
| **Total** |  |  | 93.03 (120.50) | 58.96 (82.54) | 285.14 (166.51) | 235.82 (176.87) | 228.16 (177.50) | 212.24 (212.24) | <0.001 |

The figures in Table 6 demonstrate that the total average self-reported OOP cost for childbirth in 2022 was US$ 228.16 (SD ± 177.50), with cesarean sections again being the most expensive, at an average cost of US$ 285.14 (SD ± 166.51), while institutional deliveries averaged US$ 93.03. Mothers aged 25-34 had the highest expenses, with an average of US$ 244.27, while the youngest age group (15-19 years) had the lowest costs at US$ 196.73. Higher education was significantly associated with increased OOP costs; mothers with higher education levels spent on average US$ 277.54, with significant expenditure of US$ 318.47 per participant for CS. Similarly, husbands with higher education levels had higher expenditures, averaging US$ 273.46, and up to US$ 311.41 for CS. The highest OOP costs were reported among obese mothers, with an average of US$ 234.11, particularly for CS (US$ 292.10). Mothers attending four or more ANC visits had significantly higher expenses, averaging US$ 249.53. OOP costs for those with recommended ANC visits (≥4) were US$ 102.85 for institutional deliveries, and US$ 299.37 for CS. Wealthier families incurred higher expenses, with costs for institutional deliveries at US$ 114.39, and CS at US$ 301.94. In 2022, the average OOP spending was the highest in Barisal (US$ 270.58), with the highest CS cost in Sylhet (US$ 367.71). Urban residents consistently faced higher OOP expenses, averaging US$ 243.96, reflecting ongoing inequities in access to affordable delivery services.

Table 7: Factors Associated with Child Delivery Costs in Bangladesh Based on the 2022 BDHS Survey

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Home Delivery | Institutional Normal Delivery | Cesarean Section | Total |
|  |  | Coef. (SE) | Coef. (SE) | Coef. (SE) |
| **Delivery** |  |  |  |  |
| Home Delivery |  |  |  |  |
| Institutional Normal Delivery |  |  |  | Ref |
| Cesarean section |  |  |  | 0.60 0.02 |
| **Women’s age group** |  |  |  |  |
| 15‐19 |  | Ref | Ref | Ref |
| 20‐24 |  | 0.04 0.05 | 0.00 0.02 | 0.01 0.02 |
| 25‐34 |  | 0.03 0.06 | 0.04 0.03 | 0.04 0.03 |
| 35‐49 |  | 0.03 0.07 | 0.02 0.03 | 0.02 0.03 |
| **Women's education** |  |  |  |  |
| No education |  | Ref | Ref | Ref |
| Primary |  | 0.11 0.07 | 0.09 0.04 | 0.10 0.04 |
| Secondary |  | 0.10 0.07 | 0.09 0.04\* | 0.10 0.04 |
| Higher |  | 0.20 0.08\*\* | 0.12 0.04\*\*\* | 0.14 0.04 |
| **Women’s working status** |  |  |  |  |
| Not working |  | Ref | Ref | Ref |
| Working |  | -0.01 0.04 | 0.00 0.02 | -0.00 0.02 |
| **Women’s BMI** |  |  |  |  |
| Underweight |  | Ref | Ref | Ref |
| Normal weight |  | 0.04 0.07 | -0.05 0.02\* | -0.03 0.03 |
| Overweight |  | 0.00 0.07 | -0.06 0.03\* | -0.04 0.03 |
| Obese |  | -0.01 0.06 | -0.03 0.02 | -0.03 0.03 |
| **ANC visit** |  |  |  |  |
| No ANC |  | Ref | Ref | Ref |
| 1‐3 |  | 0.10 0.09 | -0.02 0.04 | 0.03 0.05 |
| ≥4 |  | 0.11 0.10 | -0.00 0.05 | 0.05 0.05 |
| **Husband age** |  |  |  |  |
| 15-29 |  | Ref | Ref | Ref |
| 30-44 |  | 0.03 0.04 | 0.02 0.02 | 0.03 0.02 |
| 45 or above |  | -0.04 0.07 | 0.04 0.03 | 0.01 0.03 |
| **Husband education** |  |  |  |  |
| No education |  | Ref | Ref | Ref |
| Primary |  | 0.01 0.05 | -0.06 0.03\* | -0.03 0.02 |
| Secondary |  | 0.01 0.05 | -0.04 0.02 | -0.02 0.02 |
| Higher |  | 0.02 0.06 | -0.04 0.03 | -0.02 0.03 |
| **Husband occupation** |  |  |  |  |
| Not working |  | Ref | Ref | Ref |
| Farmer |  | 0.04 0.11 | -0.03 0.05 | -0.01 0.05 |
| Agriculture |  | 0.01 0.10 | -0.05 0.05 | -0.03 0.05 |
| Day labor |  | -0.02 0.10 | -0.02 0.05 | -0.02 0.05 |
| Factory worker |  | -0.00 0.09 | 0.02 0.05 | 0.01 0.04 |
| Service holder |  | 0.06 0.11 | 0.02 0.05 | 0.03 0.05 |
| Business |  | 0.04 0.09 | 0.01 0.05 | 0.02 0.04 |
| Skilled worker |  | -0.07 0.09 | -0.00 0.05 | -0.02 0.04 |
| Other |  | -0.03 0.14 | -0.07 0.08 | -0.06 0.07 |
| **Household size** |  |  |  |  |
| ≤4 |  | Ref | Ref | Ref |
| >4 |  | 0.03 0.03 | -0.00 0.01 | 0.00 0.01 |
| **Wealth index** |  |  |  |  |
| Poor |  | Ref | Ref | Ref |
| Middle |  | -0.05 0.04 | 0.02 0.02 | 0.01 0.02 |
| Rich |  | 0.05 0.05 | 0.02 0.02 | 0.04 0.02 |
| **Birth order** |  |  |  |  |
| 1 |  | Ref | Ref | Ref |
| 2‐3 |  | -0.06 0.04 | -0.01 0.02 | -0.03 0.02 |
| ≥4 |  | -0.03 0.07 | -0.01 0.04 | -0.01 0.04 |
| **Mass media exposure (TV/radio)** |  |  |  |  |
| No exposure |  | Ref | Ref | Ref |
| Exposure |  | -0.03 0.03 | 0.01 0.01 | -0.00 0.01 |
| **Division** |  |  |  |  |
| Barisal |  | Ref | Ref | Ref |
| Chittagong |  | 0.04 0.07 | -0.01 0.03 | 0.01 0.03 |
| Dhaka |  | -0.04 0.07 | -0.05 0.03 | -0.05 0.03 |
| Khulna |  | -0.24 0.08\*\*\* | -0.18 0.03\* | -0.19 0.03 |
| Mymensingh |  | -0.17 0.08\* | -0.07 0.03\*\*\* | -0.10 0.03 |
| Rajshahi |  | -0.11 0.09 | -0.18 0.03\* | -0.16 0.03 |
| Rangpur |  | -0.24 0.08\*\*\* | -0.13 0.03\*\*\* | -0.16 0.03 |
| Sylhet |  | -0.01 0.07 | 0.00 0.03\*\*\* | -0.01 0.04 |
| **Place of residence** |  |  |  |  |
| Urban |  | Ref | Ref | Ref |
| Rural |  | -0.01 0.04 | 0.02 0.02 | 0.02 0.02 |
| **Religion** |  |  |  |  |
| Islam |  | Ref | Ref | Ref |
| Others |  | -0.04 0.04 | 0.02 0.02 | 0.00 0.02 |
| N |  | 926 | 2228 | 3154 |
| Mean VIF |  | 3.55 | 4.39 | 3.90 |
| **R2** |  | 13.54% | 8.94% | 45.46% |
| **AIC** |  | 906.59 | 761.32 | 1778.23 |
| **BIC** |  | 1104.65 | 995.38 | 2032.60 |
| **F value, (Prob > F)** |  | <0.001 | <0.001 | <0.001 |

In 2022, several factors significantly impacted the OOP costs for childbirth. Cesarean sections led to notably higher costs compared to institutional deliveries. Age also played a role; mothers in the 35-49 age group tended to pay more for childbirth, especially if they opted for cesarean sections. Education was another significant factor. Mothers with higher education levels and their husbands also with higher education consistently spent more on delivery costs, particularly for institutional deliveries and cesarean sections. The number of ANC visits was linked to increased expenses; those who attended four or more visits had higher OOP costs across all types of deliveries. The wealth index revealed that families in the richest category paid considerably more for childbirth services, especially for cesarean sections. Additionally, families living in urban areas faced higher costs compared to those in rural areas, highlighting disparities based on location.

Table 8: Cost Distribution of Child Delivery in Bangladesh (US$) Based on the Pooled (2014-2022) BDHS Survey

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Home Delivery | | Normal Delivery | | Cesarean Section | | Total | | P-value |
|  | Mean (SD) | Median (IQR) | Mean (SD) | Median (IQR) | Mean (SD) | Median (IQR) | Mean (SD) | Median (IQR) |  |
| **Age** | 24.84 5.75 | 24.00 20.00 | 24.58 5.56 | 24.00 20.00 | 25.39 5.56 | 25.00 21.00 | 25.00 5.65 | 24.00 21.00 | <0.001 |
| **Women’s age group** |  |  |  |  |  |  |  |  |  |
| 15‐19 | 17.25 24.06 | 10.01 21.89 | 70.42 82.72 | 50.04 57.52 | 234.00 124.72 | 231.75 144.65 | 100.97 127.12 | 38.62 155.79 | <0.001 |
| 20‐24 | 16.10 30.29 | 8.56 16.74 | 79.30 101.10 | 58.96 64.37 | 260.26 157.19 | 235.82 160.21 | 125.38 156.83 | 58.96 196.06 |  |
| 25‐34 | 15.32 24.69 | 7.51 17.38 | 75.36 102.02 | 49.48 62.55 | 297.90 271.95 | 250.22 176.87 | 143.51 223.51 | 58.96 223.31 |  |
| 35‐49 | 15.63 31.39 | 6.44 17.48 | 75.71 90.95 | 51.50 66.54 | 296.14 196.07 | 257.50 183.63 | 145.87 188.40 | 62.55 226.81 |  |
| P-value | 0.3984 |  | 0.4410 |  | <0.001 |  | <0.001 |  |  |
| **Women's education** |  |  |  |  |  |  |  |  |  |
| No education | 11.47 20.19 | 6.26 11.51 | 56.23 57.99 | 35.37 55.75 | 223.27 144.92 | 200.18 122.31 | 49.39 97.12 | 11.10 35.60 | <0.001 |
| Primary | 13.34 21.46 | 6.44 14.16 | 68.24 85.56 | 47.16 53.67 | 257.66 159.04 | 235.82 167.37 | 79.98 131.80 | 19.31 93.83 |  |
| Secondary | 18.73 34.29 | 12.51 21.16 | 74.10 98.24 | 51.50 57.52 | 265.30 200.40 | 235.82 164.16 | 133.73 179.23 | 64.37 211.16 |  |
| Higher | 22.84 23.85 | 15.45 22.85 | 98.75 109.04 | 62.55 82.54 | 305.70 222.80 | 257.50 195.37 | 228.47 220.91 | 193.12 257.50 |  |
| P-value | <0.001 |  | <0.001 |  | <0.001 |  | <0.001 |  |  |
| **Women’s working status** |  |  |  |  |  |  |  |  |  |
| Not working | 16.86 30.69 | 8.76 22.52 | 78.92 93.45 | 58.96 68.58 | 280.88 210.56 | 250.22 176.87 | 141.88 189.23 | 64.37 222.95 | <0.001 |
| Working | 14.41 22.01 | 7.08 16.26 | 66.95 103.29 | 38.62 47.16 | 254.95 165.77 | 235.82 168.59 | 100.04 149.46 | 25.75 148.06 |  |
| P-value | <0.001 |  | <0.001 |  | <0.001 |  | <0.001 |  |  |
| **Women’s BMI** |  |  |  |  |  |  |  |  |  |
| Underweight | 13.50 20.68 | 6.44 14.16 | 67.03 79.97 | 38.62 52.23 | 232.58 131.03 | 199.56 184.02 | 69.25 112.26 | 18.77 70.99 | <0.001 |
| Normal weight | 16.12 25.71 | 7.72 16.94 | 72.94 93.71 | 50.04 62.55 | 255.80 201.14 | 235.82 168.59 | 95.14 155.81 | 25.75 135.06 |  |
| Overweight | 18.04 35.86 | 10.01 22.45 | 73.10 88.76 | 50.04 52.79 | 280.62 184.54 | 250.22 178.58 | 149.20 180.66 | 75.07 230.46 |  |
| Obese | 19.57 42.19 | 12.51 21.16 | 86.62 110.89 | 58.96 59.57 | 296.16 224.17 | 253.86 176.87 | 217.76 219.79 | 188.66 235.82 |  |
| P-value | <0.001 |  | <0.001 |  | <0.001 |  | <0.001 |  |  |
| **ANC visit** |  |  |  |  |  |  |  |  |  |
| No ANC | 11.27 22.15 | 6.26 11.76 | 65.38 71.89 | 37.53 70.36 | 248.46 129.44 | 237.71 162.64 | 31.98 74.70 | 6.44 22.33 | <0.001 |
| 1‐3 | 16.82 31.64 | 8.76 18.02 | 70.50 86.82 | 50.04 57.52 | 252.78 148.04 | 235.82 158.27 | 108.53 143.75 | 37.53 166.57 |  |
| ≥4 | 18.77 24.91 | 12.51 21.27 | 82.68 106.77 | 55.39 68.58 | 290.68 231.02 | 250.22 176.87 | 178.83 215.40 | 128.75 231.75 |  |
| P-value | <0.001 |  | <0.001 |  | <0.001 |  | <0.001 |  |  |
| **Husband age** |  |  |  |  |  |  |  |  |  |
| 15-29 | 16.63 31.96 | 9.01 17.77 | 71.30 82.61 | 51.50 56.79 | 245.13 151.57 | 235.82 162.64 | 108.51 143.02 | 38.62 165.07 | <0.001 |
| 30-44 | 16.19 26.91 | 7.51 17.38 | 80.54 106.62 | 53.06 69.31 | 285.96 218.57 | 250.22 176.87 | 143.38 196.01 | 64.37 223.31 |  |
| 45 or above | 13.21 19.42 | 6.26 15.45 | 65.59 68.88 | 42.49 51.48 | 301.77 212.43 | 257.50 197.06 | 125.78 186.06 | 37.53 186.69 |  |
| P-value | 0.0676 |  | 0.0255 |  | <0.001 |  | <0.001 |  |  |
| **Husband education** |  |  |  |  |  |  |  |  |  |
| No education | 12.49 22.64 | 6.26 11.62 | 58.11 64.20 | 37.53 41.27 | 260.87 186.17 | 235.82 184.62 | 68.81 130.77 | 12.87 59.98 | <0.001 |
| Primary | 15.48 27.86 | 7.72 16.81 | 67.87 90.74 | 47.16 58.96 | 247.07 152.66 | 235.82 162.64 | 91.22 136.10 | 25.75 122.31 |  |
| Secondary | 18.59 33.15 | 12.51 21.27 | 78.01 91.80 | 55.36 68.58 | 266.94 177.47 | 235.82 161.49 | 139.20 169.67 | 70.75 220.81 |  |
| Higher | 20.74 23.73 | 12.87 19.49 | 98.56 125.41 | 62.55 82.54 | 306.39 249.98 | 257.50 197.06 | 223.80 241.05 | 188.66 262.92 |  |
| P-value | <0.001 |  | <0.001 |  | <0.001 |  | <0.001 |  |  |
| **Husband occupation** |  |  |  |  |  |  |  |  |  |
| Not working | 15.98 24.45 | 6.44 12.36 | 97.49 85.82 | 70.75 93.38 | 320.64 220.42 | 259.40 235.13 | 218.96 212.54 | 165.07 230.40 | <0.001 |
| Farmer | 13.49 24.87 | 6.44 13.73 | 64.60 82.28 | 45.06 53.67 | 226.29 141.66 | 193.12 141.49 | 83.41 125.80 | 24.30 118.85 |  |
| Agriculture | 13.12 20.42 | 6.26 17.48 | 76.94 109.35 | 47.16 51.14 | 229.52 126.37 | 196.79 153.15 | 70.78 115.17 | 18.77 72.25 |  |
| Day labor | 13.07 20.74 | 6.44 12.87 | 68.33 102.52 | 38.62 53.67 | 246.34 153.11 | 235.82 130.38 | 81.09 131.75 | 20.60 111.66 |  |
| Factory worker | 18.62 45.11 | 8.76 16.52 | 86.03 110.47 | 58.96 71.72 | 284.08 164.77 | 257.50 166.07 | 160.19 175.54 | 117.91 238.73 |  |
| Service holder | 23.35 23.59 | 16.74 25.93 | 101.38 123.69 | 64.37 80.38 | 316.23 195.98 | 283.25 198.59 | 241.60 207.48 | 212.24 282.99 |  |
| Business | 17.05 26.88 | 9.01 18.02 | 74.07 89.40 | 51.50 65.10 | 289.17 248.07 | 250.22 176.87 | 151.83 213.76 | 77.25 222.95 |  |
| Skilled worker | 18.02 28.38 | 12.51 21.21 | 70.57 81.88 | 47.16 51.50 | 261.68 209.84 | 235.82 167.37 | 120.46 174.89 | 47.40 176.15 |  |
| Other | 17.49 35.90 | 6.44 23.77 | 86.70 96.32 | 58.96 75.07 | 251.97 102.60 | 250.22 135.91 | 100.59 126.04 | 34.41 181.23 |  |
| P-value | <0.001 |  | <0.001 |  | <0.001 |  | <0.001 |  |  |
| **Household size** |  |  |  |  |  |  |  |  |  |
| ≤4 | 16.14 31.89 | 7.51 17.44 | 70.56 84.50 | 47.16 57.52 | 268.23 200.74 | 235.82 175.65 | 133.66 180.37 | 62.55 219.24 | 0.1791 |
| >4 | 15.98 26.33 | 7.72 16.81 | 78.30 100.93 | 51.50 65.10 | 278.63 202.27 | 250.22 178.58 | 128.80 179.98 | 51.50 194.21 |  |
| P-value | 0.8522 |  | 0.0623 |  | 0.0867 |  | 0.1614 |  |  |
| **Wealth index** |  |  |  |  |  |  |  |  |  |
| Poor | 13.69 27.94 | 6.44 14.16 | 65.94 75.00 | 45.06 53.67 | 245.94 159.07 | 231.75 140.28 | 76.92 127.83 | 19.31 93.83 | <0.001 |
| Middle | 17.06 23.28 | 10.01 22.45 | 71.17 81.77 | 50.04 62.55 | 251.62 148.48 | 235.82 171.74 | 116.13 145.70 | 50.04 175.15 |  |
| Rich | 20.41 30.99 | 12.51 20.60 | 85.60 113.99 | 58.96 68.58 | 293.27 226.65 | 257.50 176.87 | 184.59 215.15 | 128.75 245.14 |  |
| P-value | <0.001 |  | <0.001 |  | <0.001 |  | <0.001 |  |  |
| **Birth order** |  |  |  |  |  |  |  |  |  |
| 1 | 19.26 32.91 | 12.51 20.02 | 80.22 93.51 | 58.96 64.85 | 267.45 200.20 | 235.82 172.72 | 146.19 183.03 | 82.54 216.51 | <0.001 |
| 2‐3 | 14.82 23.92 | 6.44 17.48 | 72.17 100.88 | 47.16 58.96 | 282.24 207.06 | 250.22 176.87 | 131.60 185.71 | 50.04 209.86 |  |
| ≥4 | 13.68 28.90 | 6.44 13.73 | 71.91 84.85 | 39.91 53.67 | 277.19 157.69 | 250.22 186.36 | 68.11 123.71 | 12.87 58.69 |  |
| P-value | <0.001 |  | 0.1153 |  | 0.0417 |  | <0.001 |  |  |
| **Mass media exposure (TV/radio)** |  |  |  |  |  |  |  |  |  |
| No exposure | 14.35 28.56 | 6.44 16.23 | 76.22 103.08 | 51.50 62.55 | 258.69 160.77 | 235.82 180.25 | 81.91 135.30 | 20.60 93.83 | <0.001 |
| Exposure | 17.77 27.42 | 10.30 21.27 | 75.72 92.90 | 51.50 62.55 | 279.40 210.91 | 248.05 178.58 | 156.32 195.18 | 94.33 231.45 |  |
| P-value | <0.001 |  | 0.9048 |  | <0.001 |  | <0.001 |  |  |
| **Division** |  |  |  |  |  |  |  |  |  |
| Barisal | 18.05 25.17 | 9.01 21.27 | 90.59 94.69 | 58.96 92.16 | 318.16 251.82 | 294.78 182.20 | 136.22 207.69 | 38.62 226.81 | <0.001 |
| Chittagong | 22.45 26.77 | 12.87 19.49 | 95.25 91.01 | 64.37 79.29 | 321.11 168.68 | 294.78 161.05 | 134.51 168.13 | 58.96 222.95 |  |
| Dhaka | 15.75 45.04 | 6.44 18.06 | 88.69 141.92 | 58.96 66.93 | 300.56 243.62 | 250.22 166.07 | 164.67 224.24 | 90.12 237.71 |  |
| Khulna | 14.88 20.10 | 10.01 13.76 | 55.60 89.92 | 37.53 38.97 | 218.99 137.48 | 187.66 128.75 | 130.05 143.29 | 90.12 174.36 |  |
| Mymensingh | 12.27 15.96 | 7.72 12.87 | 61.52 71.52 | 38.62 42.49 | 274.18 173.74 | 257.50 176.87 | 138.69 172.65 | 58.96 224.03 |  |
| Rajshahi | 13.65 24.92 | 6.44 13.73 | 52.37 53.08 | 37.53 40.79 | 207.97 113.42 | 187.66 128.75 | 107.26 121.52 | 62.55 166.86 |  |
| Rangpur | 12.86 23.32 | 6.44 14.20 | 53.75 61.34 | 35.37 45.61 | 222.76 122.17 | 200.18 141.76 | 99.15 125.12 | 35.37 169.14 |  |
| Sylhet | 12.86 23.32 | 6.44 14.20 | 53.75 61.34 | 35.37 45.61 | 222.76 122.17 | 200.18 141.76 | 99.15 125.12 | 35.37 169.14 |  |
| P-value | <0.001 |  | <0.001 |  | <0.001 |  | <0.001 |  |  |
| **Place of residence** |  |  |  |  |  |  |  |  |  |
| Urban | 17.28 24.86 | 9.01 21.89 | 72.82 101.25 | 47.16 53.52 | 287.93 235.74 | 250.22 186.36 | 164.37 213.72 | 100.09 230.91 | <0.001 |
| Rural | 15.63 28.98 | 7.51 17.44 | 77.76 92.83 | 53.06 68.41 | 265.32 170.56 | 235.82 167.37 | 112.40 156.66 | 37.53 179.94 |  |
| P-value | .0737 |  | 0.2126 |  | <0.001 |  | <0.001 |  |  |
| **Religion** |  |  |  |  |  |  |  |  |  |
| Islam | 16.15 28.45 | 7.72 16.81 | 75.78 96.74 | 51.50 62.55 | 275.40 198.10 | 235.82 188.66 | 128.88 177.96 | 51.50 194.21 | 0.9501 |
| Others | 14.25 21.88 | 6.44 13.73 | 76.69 91.17 | 57.94 64.37 | 272.93 232.45 | 235.82 145.01 | 145.08 200.30 | 87.58 222.95 |  |
| P-value | 0.2216 |  | 0.8836 |  | 0.7947 |  | <0.001 |  |  |
| **Total** | 16.02 28.06 | 7.72 16.81 | 75.88 96.14 | 51.50 62.55 | 275.15 201.80 | 235.82 186.36 | 130.32 180.11 | 58.45 199.73 | <0.001 |

Overall, from 2014 to 2022, the mean OOP expense during child delivery was US$ 130.32. The OOP cost (US$ 145.87) was most associated with the women who belongs to age group 35-49. In addition to that, women’s education and social status also played a vital role in high OOP spending. The cost incurred with highly educated and wealthy women were US$ 228.47 and US$ 184.59, respectively, throughout the period. Not only that, the obese women had to spent much higher amount (US$ 217.76) during the child delivery. Places of birth also played a significant role for high expenditure. Participants from Dhaka (US$ 164.67), and specifically from urban area (US$ 164.37) spend the most for their child delivery. Participants who visited the skilled physician for prenatal care for four or more than four times had the highest OOP expenditure (US$ 178.83) throughout to the time span.

Table 9: Factors Associated with Child Delivery Costs in Bangladesh Based on the Pooled (2014-2022) BDHS Survey

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Home Delivery | Institutional Normal Delivery | Cesarean Section | Total |
|  |  | Coef. (SE) | Coef. (SE) | Coef. (SE) |
| **Delivery** |  |  |  |  |
| Home Delivery |  |  |  | Ref |
| Institutional Normal Delivery |  |  |  | 0.68 0.02 |
| Cesarean section |  |  |  | 1.31 0.01 |
| **Women’s age group** |  |  |  |  |
| 15‐19 | Ref | Ref | Ref | Ref |
| 20‐24 | 0.01 0.03 | 0.04 0.03 | 0.00 0.01 | 0.00 0.01 |
| 25‐34 | 0.05 0.04 | 0.01 0.04 | 0.02 0.02 | 0.02 0.02 |
| 35‐49 | 0.12 0.04 | 0.03 0.04 | 0.03 0.02 | 0.06 0.02 |
| **Women's education** |  |  |  |  |
| No education | Ref | Ref | Ref | Ref |
| Primary | -0.03 0.03 | -0.02 0.05 | 0.06 0.03 | -0.00 0.03 |
| Secondary | 0.05 0.04 | 0.00 0.04 | 0.08 0.03 | 0.05 0.02 |
| Higher | 0.10 0.05 | 0.09 0.05 | 0.10 0.03 | 0.08 0.03 |
| **Women’s working status** |  |  |  |  |
| Not working | Ref | Ref | Ref | Ref |
| Working | -0.06 0.02 | -0.03 0.02 | -0.01 0.01 | -0.04 0.01 |
| **Women’s BMI** |  |  |  |  |
| Underweight | Ref | Ref | Ref | Ref |
| Normal weight | 0.01 0.02 | 0.05 0.04 | 0.01 0.02 | 0.02 0.02 |
| Overweight | 0.03 0.03 | 0.04 0.04 | 0.04 0.02 | 0.04 0.02 |
| Obese | 0.06 0.04 | 0.09 0.04 | 0.07 0.02 | 0.07 0.02 |
| **ANC visit** |  |  |  |  |
| No ANC | Ref | Ref | Ref | Ref |
| 1‐3 | 0.12 0.02 | 0.03 0.05 | -0.03 0.03 | 0.11 0.02 |
| ≥4 | 0.18 0.03 | 0.06 0.05 | -0.01 0.03 | 0.14 0.02 |
| **Husband age** |  |  |  |  |
| 15-29 | Ref | Ref | Ref | Ref |
| 30-44 | 0.03 0.03 | 0.02 0.02 | 0.03 0.01 | 0.02 0.01 |
| 45 or above | -0.02 0.04 | -0.02 0.05 | 0.03 0.02 | 0.00 0.02 |
| **Husband education** |  |  |  |  |
| No education | Ref | Ref | Ref | Ref |
| Primary | 0.01 0.03 | 0.05 0.04 | -0.02 0.02 | 0.02 0.02 |
| Secondary | 0.01 0.03 | 0.08 0.04 | -0.00 0.02 | 0.02 0.02 |
| Higher | 0.06 0.05 | 0.12 0.04 | 0.02 0.02 | 0.04 0.02 |
| **Husband occupation** |  |  |  |  |
| Not working | Ref | Ref | Ref | Ref |
| Farmer | - | - | - | - |
| Agriculture | - | - | - | - |
| Day labor | - | - | - | - |
| Factory worker | - | - | - | - |
| Service holder | - | - | - | - |
| Business | - | - | - | - |
| Skilled worker | - | - | - | - |
| Other | - | - | - | - |
| **Household size** |  |  |  |  |
| ≤4 | Ref | Ref | Ref | Ref |
| >4 | 0.02 0.02 | 0.01 0.02 | 0.00 0.01 | 0.01 0.01 |
| **Wealth index** |  |  |  |  |
| Poor | Ref | Ref | Ref | Ref |
| Middle | 0.04 0.03 | 0.01 0.03 | -0.02 0.01 | 0.03 0.01 |
| Rich | 0.09 0.03 | 0.03 0.03 | 0.00 0.01 | 0.05 0.01 |
| **Birth order** |  |  |  |  |
| 1 | Ref | Ref | Ref | Ref |
| 2‐3 | -0.15 0.03 | -0.08 0.02 | -0.00 0.01 | -0.07 0.01 |
| ≥4 | -0.16 0.04 | -0.08 0.04 | -0.02 0.02 | -0.09 0.02 |
| **Mass media exposure (TV/radio)** |  |  |  |  |
| No exposure | Ref | Ref | Ref | Ref |
| Exposure | 0.01 0.02 | -0.04 0.02 | 0.01 0.01 | 0.00 0.01 |
| **Division** |  |  |  |  |
| Barisal | Ref | Ref | Ref | Ref |
| Chittagong | 0.10 0.04 | 0.06 0.04 | 0.03 0.02 | 0.06 0.02 |
| Dhaka | -0.09 0.04 | -0.00 0.05 | -0.04 0.02 | -0.06 0.02 |
| Khulna | -0.06 0.04 | -0.17 0.04 | -0.16 0.02 | -0.15 0.02 |
| Mymensingh | -0.16 0.05 | -0.14 0.05 | -0.05 0.02 | -0.11 0.03 |
| Rajshahi | -0.18 0.05 | -0.18 0.05 | -0.17 0.02 | -0.19 0.02 |
| Rangpur | -0.16 0.05 | -0.21 0.05 | -0.14 0.02 | -0.17 0.02 |
| Sylhet | -0.12 0.04 | 0.03 0.05 | 0.05 0.02 | -0.05 0.02 |
| **Place of residence** |  |  |  |  |
| Urban | Ref | Ref | Ref | Ref |
| Rural | -0.00 0.03 | 0.09 0.02 | 0.02 0.01 | 0.03 0.01 |
| **Religion** |  |  |  |  |
| Islam | Ref | Ref | Ref | Ref |
| Others | 0.02 0.04 | 0.01 0.03 | -0.00 0.01 | 0.01 0.02 |
| N | 4,496 | 2417 | 4,889 | 11,802 |
| Mean VIF | 1.90 | 2.59 | 3.58 | 2.30 |
| **R2** | 9.35% | 13.25% | 28.49% | 69.08% |
| **AIC** | 7657.194 | 2379.021 | 1628.482 | 13948.73 |
| **BIC** | 7868.755 | 2570.1 | 1842.809 | 14206.89 |
| **F value, (Prob > F)** | <0.001 | <0.001 | <0.001 | <0.001 |

The analysis showed that certain factors significantly drive-up childbirth costs. Having a cesarean section turned out to be the most expensive option (p < 0.001). Mothers with more education, especially those with secondary or higher levels, tended to spend more (p < 0.05). The costs were also higher for mothers who went to four or more antenatal check-ups (p < 0.001). Families with better financial status, particularly those in the middle and rich categories, ended up paying more for deliveries (p < 0.05). On the other hand, mothers with two or more children generally spent less (p < 0.001). There were also regional differences; childbirth expenses were lower in places like Rajshahi, Rangpur, and Sylhet (p < 0.01). Lastly, costs were a bit higher for institutional deliveries in rural areas compared to urban ones (p < 0.05), suggesting that where a mother life affects how much she pays.