**Statistical Report**

The descriptive results below are produced from R - statistical software using the Gmisc package and used a getDescriptionStatsBy function, for more information about the package see the library in the R documentation. There was a total of 260 mothers who participated in the study, 15 of them were under the CHEU Abnormal UmA-RI , 47 from CHEU Normal UmA-RI, 20 from CHUU Abnormal UmA-RI  
and 178 were under the CHUU Normal UmA-RI. Those mothers who were eligible and participated to the study, 105 of them were single, 98 were married and 57 were co-habiting.

The P-values presented below were calculated using the chi-squared test, fishers exact test was use as an alternative where the cells of the variables were less than five. P-values less than 0.05 shows that there is a significant association between the column and row variables, i.e., the RI\_Z\_Score is a significantly related to the exposure status (P-value = 0.004).

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Basic descriptive statistics for maternal sociodemographic | | | | | | |
|  | **Total No. 260** | **CHEU Abnormal UmA-RI No. 15** | **CHEU Normal UmA-RI No. 47** | **CHUU Abnormal UmA-RI No. 20** | **CHUU Normal UmA-RI No. 178** | **P-value** |
| **Marital\_status** | | | | | | 0.34 |
| 1 | 105 (40.4%) | 6 (40.0%) | 17 (36.2%) | 4 (20.0%) | 78 (43.8%) |  |
| 2 | 98 (37.7%) | 5 (33.3%) | 17 (36.2%) | 12 (60.0%) | 64 (36.0%) |  |
| 3 | 57 (21.9%) | 4 (26.7%) | 13 (27.7%) | 4 (20.0%) | 36 (20.2%) |  |
| **Premature** | | | | | | **0.012** |
| 0 | 236 (90.8%) | 13 (86.7%) | 45 (95.7%) | 14 (70.0%) | 164 (92.1%) |  |
| 1 | 24 (9.2%) | 2 (13.3%) | 2 (4.3%) | 6 (30.0%) | 14 (7.9%) |  |
| **RI\_Z\_SCORE** | 0.2 (±0.9) | 1.7 (±0.7) | -0.1 (±0.6) | 1.7 (±0.9) | 0.0 (±0.7) | **0.004** |
| **HCZScore** | | | | | | 0.18 |
| Mean (SD) | 0.4 (±1.3) | 0.5 (±1.1) | 0.3 (±1.2) | 0.3 (±0.9) | 0.4 (±1.3) |  |
| Missing | 9 (3.5%) | 1 (6.7%) | 1 (2.1%) | 1 (5.0%) | 6 (3.4%) |  |
| **WeightZScore** | | | | | | 0.37 |
| Mean (SD) | -0.4 (±1.1) | -1.0 (±0.8) | -0.6 (±1.0) | -0.4 (±1.1) | -0.3 (±1.1) |  |
| Missing | 1 (0.4%) | 0 (0%) | 0 (0%) | 0 (0%) | 1 (0.6%) |  |
| **Access\_to\_running\_water** | | | | | | 0.16 |
| 1 | 45 (17.3%) | 2 (13.3%) | 9 (19.1%) | 3 (15.0%) | 31 (17.4%) |  |
| 2 | 84 (32.3%) | 6 (40.0%) | 11 (23.4%) | 2 (10.0%) | 65 (36.5%) |  |
| 3 | 131 (50.4%) | 7 (46.7%) | 27 (57.4%) | 15 (75.0%) | 82 (46.1%) |  |
| **Mothers\_highest\_level\_of\_education** | | | | | | 0.44 |
| 1 | 24 (9.2%) | 2 (13.3%) | 3 (6.4%) | 0 (0.0%) | 19 (10.7%) |  |
| 2 | 179 (68.8%) | 11 (73.3%) | 35 (74.5%) | 17 (85.0%) | 116 (65.2%) |  |
| 3 | 57 (21.9%) | 2 (13.3%) | 9 (19.1%) | 3 (15.0%) | 43 (24.2%) |  |
| **Mothers\_current\_employment** | | | | | | 0.93 |
| 0 | 157 (60.4%) | 10 (66.7%) | 28 (59.6%) | 11 (55.0%) | 108 (60.7%) |  |
| 1 | 103 (39.6%) | 5 (33.3%) | 19 (40.4%) | 9 (45.0%) | 70 (39.3%) |  |
| **Partners\_highest\_level\_of\_education** | | | | | | 0.72 |
| 1 | 10 (3.8%) | 1 (6.7%) | 2 (4.3%) | 0 (0.0%) | 7 (3.9%) |  |
| 2 | 165 (63.5%) | 10 (66.7%) | 26 (55.3%) | 16 (80.0%) | 113 (63.5%) |  |
| 3 | 49 (18.8%) | 3 (20.0%) | 10 (21.3%) | 2 (10.0%) | 34 (19.1%) |  |
| 6 | 1 (0.4%) | 0 (0.0%) | 0 (0.0%) | 0 (0.0%) | 1 (0.6%) |  |
| 99 | 26 (10.0%) | 1 (6.7%) | 9 (19.1%) | 1 (5.0%) | 15 (8.4%) |  |
| Missing | 9 (3.5%) | 0 (0.0%) | 0 (0.0%) | 1 (5.0%) | 8 (4.5%) |  |
| **Partners\_current\_employment** | | | | | | 0.63 |
| 0 | 40 (15.4%) | 1 (6.7%) | 8 (17.0%) | 2 (10.0%) | 29 (16.3%) |  |
| 1 | 211 (81.2%) | 14 (93.3%) | 39 (83.0%) | 18 (90.0%) | 140 (78.7%) |  |
| Missing | 9 (3.5%) | 0 (0.0%) | 0 (0.0%) | 0 (0.0%) | 9 (5.1%) |  |
| **Partners\_HIV\_status** | | | | | | **0.044** |
| 0 | 43 (16.5%) | 3 (20.0%) | 11 (23.4%) | 1 (5.0%) | 28 (15.7%) |  |
| 1 | 190 (73.1%) | 8 (53.3%) | 29 (61.7%) | 18 (90.0%) | 135 (75.8%) |  |
| 2 | 25 (9.6%) | 4 (26.7%) | 7 (14.9%) | 1 (5.0%) | 13 (7.3%) |  |
| Missing | 2 (0.8%) | 0 (0.0%) | 0 (0.0%) | 0 (0.0%) | 2 (1.1%) |  |
| **Monthly\_household\_income** | | | | | | 0.12 |
| 1 | 45 (17.3%) | 0 (0.0%) | 7 (14.9%) | 1 (5.0%) | 37 (20.8%) |  |
| 2 | 64 (24.6%) | 6 (40.0%) | 13 (27.7%) | 8 (40.0%) | 37 (20.8%) |  |
| 3 | 61 (23.5%) | 3 (20.0%) | 8 (17.0%) | 6 (30.0%) | 44 (24.7%) |  |
| 4 | 18 (6.9%) | 3 (20.0%) | 6 (12.8%) | 0 (0.0%) | 9 (5.1%) |  |
| 5 | 58 (22.3%) | 2 (13.3%) | 11 (23.4%) | 4 (20.0%) | 41 (23.0%) |  |
| 6 | 12 (4.6%) | 1 (6.7%) | 1 (2.1%) | 1 (5.0%) | 9 (5.1%) |  |
| Missing | 2 (0.8%) | 0 (0.0%) | 1 (2.1%) | 0 (0.0%) | 1 (0.6%) |  |
| **Access\_to\_internet** | | | | | | **0.004** |
| 0 | 43 (16.5%) | 0 (0.0%) | 11 (23.4%) | 4 (20.0%) | 28 (15.7%) |  |
| 1 | 35 (13.5%) | 1 (6.7%) | 8 (17.0%) | 8 (40.0%) | 18 (10.1%) |  |
| 2 | 17 (6.5%) | 2 (13.3%) | 3 (6.4%) | 0 (0.0%) | 12 (6.7%) |  |
| 3 | 160 (61.5%) | 11 (73.3%) | 24 (51.1%) | 7 (35.0%) | 118 (66.3%) |  |
| Missing | 5 (1.9%) | 1 (6.7%) | 1 (2.1%) | 1 (5.0%) | 2 (1.1%) |  |
| **drink\_alcohol** | | | | | | **0.021** |
| 0 | 190 (73.1%) | 15 (100.0%) | 30 (63.8%) | 17 (85.0%) | 128 (71.9%) |  |
| 1 | 67 (25.8%) | 0 (0.0%) | 16 (34.0%) | 2 (10.0%) | 49 (27.5%) |  |
| Missing | 3 (1.2%) | 0 (0.0%) | 1 (2.1%) | 1 (5.0%) | 1 (0.6%) |  |
| **Do\_you\_smoke\_cigarettes** | | | | | | 0.66 |
| 0 | 253 (97.3%) | 15 (100.0%) | 45 (95.7%) | 19 (95.0%) | 174 (97.8%) |  |
| 1 | 6 (2.3%) | 0 (0.0%) | 2 (4.3%) | 0 (0.0%) | 4 (2.2%) |  |
| Missing | 1 (0.4%) | 0 (0.0%) | 0 (0.0%) | 1 (5.0%) | 0 (0.0%) |  |
| **Latest\_CD4** | | | | | | 0.51 |
| Mean (SD) | 428.8 (±293.8) | 336.0 (±232.3) | 455.3 (±311.4) | (±) | (±) |  |
| Missing | 242 (93.1%) | 11 (73.3%) | 33 (70.2%) | 20 (100.0%) | 178 (100.0%) |  |
| **Latest\_Viral\_load** | | | | | | 0.54 |
| Mean (SD) | 18.4 (±59.1) | 4.1 (±14.1) | 25.3 (±70.7) | (±) | (±) |  |
| Missing | 223 (85.8%) | 3 (20.0%) | 22 (46.8%) | 20 (100.0%) | 178 (100.0%) |  |
| **Current\_ART** | | | | | | **1.00** |
| 1 | 39 (15.0%) | 9 (60.0%) | 30 (63.8%) | 0 (0.0%) | 0 (0.0%) |  |
| 2 | 15 (5.8%) | 4 (26.7%) | 11 (23.4%) | 0 (0.0%) | 0 (0.0%) |  |
| Missing | 206 (79.2%) | 2 (13.3%) | 6 (12.8%) | 20 (100.0%) | 178 (100.0%) |  |
| **Access\_to\_toilet** | | | | | | 0.64 |
| 1 | 178 (68.5%) | 9 (60.0%) | 31 (66.0%) | 15 (75.0%) | 123 (69.1%) |  |
| 2 | 80 (30.8%) | 6 (40.0%) | 16 (34.0%) | 4 (20.0%) | 54 (30.3%) |  |
| Missing | 2 (0.8%) | 0 (0.0%) | 0 (0.0%) | 1 (5.0%) | 1 (0.6%) |  |
| **parity** | | | | | | 0.31 |
| Median [Q1, Q3] | 2.00 [2.00, 3.00] | 3.00 [2.00, 3.50] | 2.00 [2.00, 3.00] | 2.00 [1.75, 2.00] | 2.00 [1.00, 3.00] |  |
| **Gravidity** | | | | | | 0.25 |
| Median [Q1, Q3] | 2.00 [2.00, 3.00] | 3.00 [2.00, 4.00] | 3.00 [2.00, 3.00] | 2.00 [1.75, 3.00] | 2.00 [2.00, 3.00] |  |
| **abortion\_miscariages** | | | | | | 0.29 |
| 0 | 195 (75.0%) | 12 (80.0%) | 31 (66.0%) | 17 (85.0%) | 135 (75.8%) |  |
| 1 | 59 (22.7%) | 3 (20.0%) | 16 (34.0%) | 2 (10.0%) | 38 (21.3%) |  |
| 2 | 6 (2.3%) | 0 (0.0%) | 0 (0.0%) | 1 (5.0%) | 5 (2.8%) |  |
| **Pre\_eclampsia\_eclampsia** | | | | | | 0.50 |
| 0 | 42 (16.2%) | 6 (40.0%) | 6 (12.8%) | 11 (55.0%) | 19 (10.7%) |  |
| 1 | 2 (0.8%) | 0 (0.0%) | 1 (2.1%) | 0 (0.0%) | 1 (0.6%) |  |
| Missing | 216 (83.1%) | 9 (60.0%) | 40 (85.1%) | 9 (45.0%) | 158 (88.8%) |  |
| **UMA\_RI** | | | | | | **< 0.0001** |
| Abnormal UmA-RI | 35 (13.5%) | 15 (100.0%) | 0 (0.0%) | 20 (100.0%) | 0 (0.0%) |  |
| Normal UmA-RI | 225 (86.5%) | 0 (0.0%) | 47 (100.0%) | 0 (0.0%) | 178 (100.0%) |  |
| **mode\_of\_birth** | 2.3 (±1.9) | 3.3 (±2.3) | 2.3 (±1.8) | 2.6 (±1.9) | 2.2 (±1.8) | 0.27 |
| Birth\_Weight\_g | 3098.9 (±502.0) | 3177.0 (±781.6) | 3184.6 (±475.7) | 2952.0 (±600.3) | 3086.1 (±466.7) | **0.001** |
| **Birth\_Length\_cm** | | | | | | 0.15 |
| Mean (SD) | 50.2 (±2.9) | 49.6 (±2.5) | 49.6 (±2.3) | 48.9 (±3.5) | 50.6 (±3.0) |  |
| Missing | 10 (3.8%) | 1 (6.7%) | 2 (4.3%) | 3 (15.0%) | 4 (2.2%) |  |
| **Birth\_HC\_cm** | | | | | | **0.003** |
| Mean (SD) | 34.3 (±1.7) | 34.4 (±1.7) | 34.3 (±1.5) | 32.8 (±2.4) | 34.4 (±1.6) |  |
| Missing | 7 (2.7%) | 1 (6.7%) | 0 (0%) | 2 (10.0%) | 4 (2.2%) |  |
| **LengthZScore** | | | | | | 0.31 |
| Mean (SD) | 0.5 (±1.5) | 0.4 (±1.3) | 0.2 (±1.3) | 0.6 (±1.2) | 0.6 (±1.6) |  |
| Missing | 11 (4.2%) | 1 (6.7%) | 2 (4.3%) | 2 (10.0%) | 6 (3.4%) |  |
| The table gives description of the major characteristics, categorical variables:n(%) and continuous variables: mean(sd) | | | | | | |

**Association between the maternal HIV status and each variable.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Basic descriptive statistics for maternal hemoglobin** | | | | |
|  | **Total No. 256** | **Negative No. 195** | **Positive No. 61** | **P-value** |
| **UmbiBaby\_group** | | | | **0.007** |
| HR-PEDF | 35 (13.7%) | 20 (10.3%) | 15 (24.6%) |  |
| LR-FT | 206 (80.5%) | 161 (82.6%) | 45 (73.8%) |  |
| LR-Prem | 15 (5.9%) | 14 (7.2%) | 1 (1.6%) |  |
| **UmA\_RI** | | | | **0.009** |
| Abormal UmA-RI | 35 (13.7%) | 20 (10.3%) | 15 (24.6%) |  |
| Normal UmA-RI | 221 (86.3%) | 175 (89.7%) | 46 (75.4%) |  |
| **Maternal\_TB\_status** | | | | 0.43 |
| Never | 241 (94.1%) | 187 (95.9%) | 54 (88.5%) |  |
| Previous | 4 (1.6%) | 2 (1.0%) | 2 (3.3%) |  |
| Unknown | 4 (1.6%) | 3 (1.5%) | 1 (1.6%) |  |
| Missing | 7 (2.7%) | 3 (1.5%) | 4 (6.6%) |  |
| **Haemoglobin\_category** | | | | 0.10 |
| Mild anaemia | 31 (12.1%) | 22 (11.3%) | 9 (14.8%) |  |
| Moderate anamia | 36 (14.1%) | 23 (11.8%) | 13 (21.3%) |  |
| Normal | 189 (73.8%) | 150 (76.9%) | 39 (63.9%) |  |
| **Maternal\_Hb\_Value** | 12.7 (±1.5) | 12.8 (±1.5) | 12.3 (±1.6) | 0.081 |
| **Iron\_supplement/ferrous\_sulphate** | | | | **0.0008** |
| No | 211 (82.4%) | 170 (87.2%) | 41 (67.2%) |  |
| Yes | 45 (17.6%) | 25 (12.8%) | 20 (32.8%) |  |
| **Folic\_acid\_supplementation** | | | | **< 0.0001** |
| No | 219 (85.5%) | 177 (90.8%) | 42 (68.9%) |  |
| Yes | 37 (14.5%) | 18 (9.2%) | 19 (31.1%) |  |
| The table gives description of the major characteristics, categorical variables: n (%) and continuous variables: mean(SD) | | | | |

**Association between the HIV and abnormalities groups and each variable.**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Basic descriptive statistics for maternal haemoglobin | | | | | | |
|  | **Total No. 256** | **CHEU Abnormal UmA-RI No. 15** | **CHEU Normal UmA-RI No. 46** | **CHUU Abnormal UmA-RI No. 20** | **CHUU Normal UmA-RI No. 175** | **P-value** |
| **UmbiBaby\_group** | | | | | | **< 0.0001** |
| HR-PEDF | 35 (13.7%) | 15 (100.0%) | 0 (0.0%) | 20 (100.0%) | 0 (0.0%) |  |
| LR-FT | 206 (80.5%) | 0 (0.0%) | 45 (97.8%) | 0 (0.0%) | 161 (92.0%) |  |
| LR-Prem | 15 (5.9%) | 0 (0.0%) | 1 (2.2%) | 0 (0.0%) | 14 (8.0%) |  |
| **UmA\_RI** | | | | | | **< 0.0001** |
| Abormal UmA-RI | 35 (13.7%) | 15 (100.0%) | 0 (0.0%) | 20 (100.0%) | 0 (0.0%) |  |
| Normal UmA-RI | 221 (86.3%) | 0 (0.0%) | 46 (100.0%) | 0 (0.0%) | 175 (100.0%) |  |
| **Maternal\_TB\_status** | | | | | | **0.32** |
| Never | 241 (94.1%) | 13 (86.7%) | 41 (89.1%) | 19 (95.0%) | 168 (96.0%) |  |
| Previous | 4 (1.6%) | 0 (0.0%) | 2 (4.3%) | 0 (0.0%) | 2 (1.1%) |  |
| Unknown | 4 (1.6%) | 1 (6.7%) | 0 (0.0%) | 0 (0.0%) | 3 (1.7%) |  |
| Missing | 7 (2.7%) | 1 (6.7%) | 3 (6.5%) | 1 (5.0%) | 2 (1.1%) |  |
| **Haemoglobin\_category** | | | | | | **0.054** |
| Mild anaemia | 31 (12.1%) | 3 (20.0%) | 6 (13.0%) | 6 (30.0%) | 16 (9.1%) |  |
| Moderate anamia | 36 (14.1%) | 3 (20.0%) | 10 (21.7%) | 2 (10.0%) | 21 (12.0%) |  |
| Normal | 189 (73.8%) | 9 (60.0%) | 30 (65.2%) | 12 (60.0%) | 138 (78.9%) |  |
| **Maternal\_Hb\_Value** | 12.7 (±1.5) | 12.0 (±1.3) | 12.4 (±1.7) | 12.7 (±1.5) | 12.8 (±1.5) | 0.19 |
| **Iron\_supplement/ferrous\_sulphate** | | | | | | **< 0.0001** |
| No | 211 (82.4%) | 5 (33.3%) | 36 (78.3%) | 19 (95.0%) | 151 (86.3%) |  |
| Yes | 45 (17.6%) | 10 (66.7%) | 10 (21.7%) | 1 (5.0%) | 24 (13.7%) |  |
| **Folic\_acid\_supplementation** | | | | | | **< 0.0001** |
| No | 219 (85.5%) | 5 (33.3%) | 37 (80.4%) | 20 (100.0%) | 157 (89.7%) |  |
| Yes | 37 (14.5%) | 10 (66.7%) | 9 (19.6%) | 0 (0.0%) | 18 (10.3%) |  |
| The table gives description of the major characteristics, categorical variables:n(%) and continuous variables: mean(sd) | | | | | | |

**Feeding practices**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Basic descriptive statistics for Feeding practices | | | | | | |
|  | Total No. 260 | CHEU Abnormal UmA-RI No. 15 | CHEU Normal UmA-RI No. 47 | CHUU Abnormal UmA-RI No. 20 | CHUU Normal UmA-RI No. 178 | P-value |
| **UmA-RI\_** | | | | | | **< 0.0001** |
| Abnormal UmA-RI | 35 (13.5%) | 15 (100.0%) | 0 (0.0%) | 20 (100.0%) | 0 (0.0%) |  |
| Normal UmA-RI | 225 (86.5%) | 0 (0.0%) | 47 (100.0%) | 0 (0.0%) | 178 (100.0%) |  |
| **Early\_initiation\_of\_breastfeeding** | | | | | | **0.009** |
| 1 | 69 (26.5%) | 4 (26.7%) | 19 (40.4%) | 9 (45.0%) | 37 (20.8%) |  |
| 2 | 153 (58.8%) | 8 (53.3%) | 22 (46.8%) | 8 (40.0%) | 115 (64.6%) |  |
| Missing | 38 (14.6%) | 3 (20.0%) | 6 (12.8%) | 3 (15.0%) | 26 (14.6%) |  |
| **Early\_initiation\_of\_breastfeeding\_** | | | | | | 0.50 |
| 1 | 155 (59.6%) | 8 (53.3%) | 23 (48.9%) | 9 (45.0%) | 115 (64.6%) |  |
| 2 | 15 (5.8%) | 1 (6.7%) | 0 (0.0%) | 2 (10.0%) | 12 (6.7%) |  |
| 3 | 5 (1.9%) | 0 (0.0%) | 0 (0.0%) | 0 (0.0%) | 5 (2.8%) |  |
| Missing | 85 (32.7%) | 6 (40.0%) | 24 (51.1%) | 9 (45.0%) | 46 (25.8%) |  |
| **Ever\_breastfeed\_or\_try\_to\_breastfeed** | | | | | | 0.83 |
| 0 | 11 (4.2%) | 0 (0.0%) | 3 (6.4%) | 0 (0.0%) | 8 (4.5%) |  |
| 1 | 249 (95.8%) | 15 (100.0%) | 44 (93.6%) | 20 (100.0%) | 170 (95.5%) |  |
| **infant\_feeding\_from\_birth\_until\_6\_months...7** | | | | | | **0.002** |
| 1 | 41 (15.8%) | 3 (20.0%) | 7 (14.9%) | 5 (25.0%) | 26 (14.6%) |  |
| 2 | 127 (48.8%) | 5 (33.3%) | 23 (48.9%) | 8 (40.0%) | 91 (51.1%) |  |
| 3 | 20 (7.7%) | 5 (33.3%) | 6 (12.8%) | 2 (10.0%) | 7 (3.9%) |  |
| 4 | 31 (11.9%) | 2 (13.3%) | 1 (2.1%) | 1 (5.0%) | 27 (15.2%) |  |
| 5 | 14 (5.4%) | 0 (0.0%) | 4 (8.5%) | 0 (0.0%) | 10 (5.6%) |  |
| 6 | 23 (8.8%) | 0 (0.0%) | 4 (8.5%) | 3 (15.0%) | 16 (9.0%) |  |
| 7 | 3 (1.2%) | 0 (0.0%) | 2 (4.3%) | 1 (5.0%) | 0 (0.0%) |  |
| Missing | 1 (0.4%) | 0 (0.0%) | 0 (0.0%) | 0 (0.0%) | 1 (0.6%) |  |
| **infant\_feeding\_from\_birth\_until\_6\_months...8** | | | | | | **0.001** |
| 1 |  | 7 (46.7%) | 20 (42.6) | 7 (35.0) | 61 (34.3) |  |
| 2 |  | 0 (0.0%) | 4 (8.5%) | 0 (0.0%) | 10 (5.6) |  |
| 3 |  | 3 (20.0%) | 17 (36.2) | 11 (55.0) | 101 (56.7) |  |
| 4 |  | 5 (33.3%) | 6 (12.8%) | 2 (10.0%) | 6 (3.4) |  |
| Missing |  | 0 (0.0%) | 0 (0.0%) | 0 (0.0%) | 1 (0.6%) |  |
| **Currently\_breastfeeding** | | | | | | 0.24 |
| 0 | 194 (74.6%) | 11 (73.3%) | 42 (89.4%) | 14 (70.0%) | 127 (71.3%) |  |
| 1 | 60 (23.1%) | 3 (20.0%) | 4 (8.5%) | 4 (20.0%) | 49 (27.5%) |  |
| 7 | 1 (0.4%) | 0 (0.0%) | 0 (0.0%) | 0 (0.0%) | 1 (0.6%) |  |
| Missing | 5 (1.9%) | 1 (6.7%) | 1 (2.1%) | 2 (10.0%) | 1 (0.6%) |  |
| **Breastfeeding\_cessation\_months\_** | | | | | | **0.005** |
| Mean (SD) | 10.1 (±5.8) | 8.2 (±8.3) | 7.3 (±5.1) | 8.8 (±5.3) | 11.3 (±5.5) |  |
| Missing | 79 (30.4%) | 5 (33.3%) | 8 (17.0%) | 7 (35.0%) | 59 (33.1%) |  |
| **Breastfeeding\_cessation\_months** | | | | | | **0.0005** |
| Mean (SD) | 2.8 (±1.1) | 2.3 (±1.5) | 2.3 (±1.0) | 2.6 (±1.2) | 3.1 (±1.1) |  |
| Missing | 80 (30.8%) | 5 (33.3%) | 8 (17.0%) | 7 (35.0%) | 60 (33.7%) |  |
| **Introduction\_of\_formula\_months** | | | | | | **0.029** |
| Mean (SD) | 5.6 (±5.0) | 7.6 (±8.3) | 5.2 (±3.9) | 6.1 (±4.0) | 5.5 (±5.1) |  |
| Missing | 109 (41.9%) | 5 (33.3%) | 12 (25.5%) | 9 (45.0%) | 83 (46.6%) |  |
| **Introduction\_of\_formula\_months\_\_\_\_\_** | | | | | | 0.12 |
| 1 | 73 (28.1%) | 5 (33.3%) | 15 (31.9%) | 4 (20.0%) | 49 (27.5%) |  |
| 2 | 31 (11.9%) | 1 (6.7%) | 10 (21.3%) | 3 (15.0%) | 17 (9.6%) |  |
| 3 | 28 (10.8%) | 1 (6.7%) | 10 (21.3%) | 3 (15.0%) | 14 (7.9%) |  |
| 4 | 19 (7.3%) | 3 (20.0%) | 0 (0.0%) | 1 (5.0%) | 15 (8.4%) |  |
| Missing | 109 (41.9%) | 5 (33.3%) | 12 (25.5%) | 9 (45.0%) | 83 (46.6%) |  |
| **Tea,\_juice** | | | | | | 0.39 |
| 0 | 18 (6.9%) | 2 (13.3%) | 1 (2.1%) | 2 (10.0%) | 13 (7.3%) |  |
| 1 | 237 (91.2%) | 13 (86.7%) | 46 (97.9%) | 17 (85.0%) | 161 (90.4%) |  |
| Missing | 5 (1.9%) | 0 (0.0%) | 0 (0.0%) | 1 (5.0%) | 4 (2.2%) |  |
| **Age\_months\_given...16** | | | | | | 0.39 |
| Mean (SD) | 9.6 (±3.9) | 11.1 (±4.3) | 8.9 (±4.0) | 8.8 (±3.5) | 9.8 (±3.9) |  |
| Missing | 24 (9.2%) | 2 (13.3%) | 1 (2.1%) | 4 (20.0%) | 17 (9.6%) |  |
| **Cow's\_milk** | | | | | | 0.12 |
| 0 | 120 (46.2%) | 9 (60.0%) | 16 (34.0%) | 11 (55.0%) | 84 (47.2%) |  |
| 1 | 135 (51.9%) | 5 (33.3%) | 31 (66.0%) | 8 (40.0%) | 91 (51.1%) |  |
| Missing | 5 (1.9%) | 1 (6.7%) | 0 (0.0%) | 1 (5.0%) | 3 (1.7%) |  |
| **Age\_months\_given...18** | | | | | | 0.13 |
| Mean (SD) | 11.7 (±3.4) | 10.4 (±2.9) | 12.7 (±2.7) | 9.9 (±5.1) | 11.6 (±3.4) |  |
| Missing | 125 (48.1%) | 10 (66.7%) | 16 (34.0%) | 12 (60.0%) | 87 (48.9%) |  |
| The table gives description of the major characteristics, categorical variables:n(%) and continuous variables: mean(sd) | | | | | | |

**Children Hemoglobin**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Basic descriptive statistics for children hemoglobin | | | | | | |
|  | **Total No. 260** | **CHEU Abnormal UmA-RI No. 15** | **CHEU Normal UmA-RI No. 47** | **CHUU Abnormal UmA-RI No. 20** | **CHUU Normal UmA-RI No. 178** | **P-value** |
| **UmA\_RI\_Classification** | | | | | | **< 0.0001** |
| Abnormal UmA-RI | 35 (13.5%) | 15 (100.0%) | 0 (0.0%) | 20 (100.0%) | 0 (0.0%) |  |
| Normal UmA-RI | 225 (86.5%) | 0 (0.0%) | 47 (100.0%) | 0 (0.0%) | 178 (100.0%) |  |
| **UmbiBaby\_group** | | | | | | **< 0.0001** |
| HR-PEDF | 35 (13.5%) | 15 (100.0%) | 0 (0.0%) | 20 (100.0%) | 0 (0.0%) |  |
| LR-FT | 210 (80.8%) | 0 (0.0%) | 46 (97.9%) | 0 (0.0%) | 164 (92.1%) |  |
| LR-Prem | 15 (5.8%) | 0 (0.0%) | 1 (2.1%) | 0 (0.0%) | 14 (7.9%) |  |
| Child\_Hb\_value\_(g/dL) | 11.0 (±1.2) | 11.1 (±1.1) | 11.0 (±1.1) | 10.9 (±1.4) | 11.0 (±1.2) | 0.23 |
| **Anaemia\_category** | | | | | | 0.58 |
| Mild anaemia | 113 (43.5%) | 5 (33.3%) | 21 (44.7%) | 8 (40.0%) | 79 (44.4%) |  |
| Moderate anaemia | 14 (5.4%) | 1 (6.7%) | 2 (4.3%) | 3 (15.0%) | 8 (4.5%) |  |
| Normal | 133 (51.2%) | 9 (60.0%) | 24 (51.1%) | 9 (45.0%) | 91 (51.1%) |  |
| **infant\_receive\_any\_vitamins\_or\_supplement\_drops** | | | | | | 0.48 |
| No | 207 (79.6%) | 14 (93.3%) | 38 (80.9%) | 16 (80.0%) | 139 (78.1%) |  |
| Yes | 51 (19.6%) | 1 (6.7%) | 8 (17.0%) | 3 (15.0%) | 39 (21.9%) |  |
| Missing | 2 (0.8%) | 0 (0.0%) | 1 (2.1%) | 1 (5.0%) | 0 (0.0%) |  |
| **If\_Yes\_Vitamin\_D\_drops** | | | | | | 0.28 |
| No | 258 (99.2%) | 15 (100.0%) | 47 (100.0%) | 19 (95.0%) | 177 (99.4%) |  |
| Yes | 2 (0.8%) | 0 (0.0%) | 0 (0.0%) | 1 (5.0%) | 1 (0.6%) |  |
| **If\_Yes\_Iron\_supplement** | | | | | | 0.53 |
| No | 258 (99.2%) | 15 (100.0%) | 46 (97.9%) | 20 (100.0%) | 177 (99.4%) |  |
| Yes | 2 (0.8%) | 0 (0.0%) | 1 (2.1%) | 0 (0.0%) | 1 (0.6%) |  |
| **If\_Yes\_Multivitamin** | | | | | | 0.31 |
| No | 221 (85.0%) | 15 (100.0%) | 41 (87.2%) | 18 (90.0%) | 147 (82.6%) |  |
| Yes | 39 (15.0%) | 0 (0.0%) | 6 (12.8%) | 2 (10.0%) | 31 (17.4%) |  |
| **If\_Yes\_zinc\_supplements** | | | | | | 0.53 |
| No | 254 (97.7%) | 14 (93.3%) | 46 (97.9%) | 20 (100.0%) | 174 (97.8%) |  |
| Yes | 6 (2.3%) | 1 (6.7%) | 1 (2.1%) | 0 (0.0%) | 4 (2.2%) |  |
| The table gives description of the major characteristics, categorical variables:n(%) and continuous variables: mean(sd) | | | | | | |

**Children Hemoglobin by Maternal HIV status**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Basic descriptive statistics for children hemoglobin | | | | |
|  | **Total No. 260** | **Negative No. 198** | **Positive No. 62** | **P-value** |
| **UmA\_RI\_Classification** | | | | **0.009** |
| Abnormal UmA-RI | 35 (13.5%) | 20 (10.1%) | 15 (24.2%) |  |
| Normal UmA-RI | 225 (86.5%) | 178 (89.9%) | 47 (75.8%) |  |
| **UmbiBaby\_group** | | | | **0.007** |
| HR-PEDF | 35 (13.5%) | 20 (10.1%) | 15 (24.2%) |  |
| LR-FT | 210 (80.8%) | 164 (82.8%) | 46 (74.2%) |  |
| LR-Prem | 15 (5.8%) | 14 (7.1%) | 1 (1.6%) |  |
| **Child\_Hb\_value\_(g/dL)** | 11.0 (±1.2) | 11.0 (±1.2) | 11.0 (±1.1) | 0.80 |
| **Anaemia\_category** | | | | 0.92 |
| Mild anaemia | 113 (43.5%) | 87 (43.9%) | 26 (41.9%) |  |
| Moderate anaemia | 14 (5.4%) | 11 (5.6%) | 3 (4.8%) |  |
| Normal | 133 (51.2%) | 100 (50.5%) | 33 (53.2%) |  |
| **infant\_receive\_any\_vitamins\_or\_supplement\_drops** | | | | 0.35 |
| No | 207 (79.6%) | 155 (78.3%) | 52 (83.9%) |  |
| Yes | 51 (19.6%) | 42 (21.2%) | 9 (14.5%) |  |
| Missing | 2 (0.8%) | 1 (0.5%) | 1 (1.6%) |  |
| **If\_Yes\_Vitamin\_D\_drops** | | | | **1.00** |
| No | 258 (99.2%) | 196 (99.0%) | 62 (100.0%) |  |
| Yes | 2 (0.8%) | 2 (1.0%) | 0 (0.0%) |  |
| **If\_Yes\_Iron\_supplement** | | | | 0.42 |
| No | 258 (99.2%) | 197 (99.5%) | 61 (98.4%) |  |
| Yes | 2 (0.8%) | 1 (0.5%) | 1 (1.6%) |  |
| **If\_Yes\_Multivitamin** | | | | 0.22 |
| No | 221 (85.0%) | 165 (83.3%) | 56 (90.3%) |  |
| Yes | 39 (15.0%) | 33 (16.7%) | 6 (9.7%) |  |
| **If\_Yes\_zinc\_supplements** | | | | 0.63 |
| No | 254 (97.7%) | 194 (98.0%) | 60 (96.8%) |  |
| Yes | 6 (2.3%) | 4 (2.0%) | 2 (3.2%) |  |
| The table gives description of the major characteristics, categorical variables: n (%) and continuous variables: mean(SD) | | | | |

**Child Anthro descriptives**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Total No. 260** | **CHEU Abnormal UmA-RI No. 15** | **CHEU Normal UmA-RI No. 47** | **CHUU Abnormal UmA-RI No. 20** | **CHUU Normal UmA-RI No. 178** | **P-value** |
| Age\_(d) | 564.9 (±27.3) | 574.3 (±36.4) | 565.7 (±26.8) | 554.5 (±6.4) | 565.1 (±27.9) | 0.87 |
| Age\_(m) | 18.6 (±0.8) | 18.8 (±0.9) | 18.6 (±0.8) | 18.2 (±0.2) | 18.6 (±0.9) | 0.96 |
| Weight\_(kg) | 10.8 (±1.6) | 9.9 (±1.0) | 10.7 (±1.8) | 10.8 (±1.9) | 10.9 (±1.6) | 0.26 |
| Length\_(cm) | 81.4 (±3.8) | 78.2 (±3.5) | 80.8 (±3.1) | 81.0 (±4.1) | 81.9 (±3.8) | 0.002 |
| **MUAC\_(cm)** | | | | | | 0.48 |
| Mean (SD) | 16.1 (±1.5) | 16.0 (±1.4) | 16.2 (±1.7) | 16.4 (±1.7) | 16.1 (±1.4) |  |
| Missing | 1 (0.4%) | 0 (0%) | 1 (2.1%) | 0 (0%) | 0 (0%) |  |
| **HC\_(cm)** | | | | | | 1.00 |
| Mean (SD) | 48.1 (±1.7) | 47.1 (±1.2) | 48.1 (±1.9) | 48.5 (±1.9) | 48.1 (±1.6) |  |
| Missing | 6 (2.3%) | 0 (0%) | 0 (0%) | 1 (5.0%) | 5 (2.8%) |  |
| WHZ | 0.1 (±1.3) | 0.0 (±0.8) | 0.2 (±1.5) | 0.1 (±1.3) | 0.1 (±1.2) | 0.60 |
| HAZ | -0.2 (±1.3) | -1.3 (±1.3) | -0.5 (±1.1) | -0.2 (±1.5) | -0.1 (±1.3) | 0.79 |
| WAZ | 0.0 (±1.2) | -0.6 (±0.9) | -0.1 (±1.3) | 0.0 (±1.5) | 0.0 (±1.2) | 0.25 |
| **HCZ** | | | | | | 0.093 |
| Mean (SD) | 0.9 (±1.2) | 0.3 (±0.7) | 0.9 (±1.3) | 1.3 (±1.5) | 0.9 (±1.2) |  |
| Missing | 6 (2.3%) | 0 (0%) | 0 (0%) | 1 (5.0%) | 5 (2.8%) |  |
| **MUACZ** | | | | | | 0.52 |
| Mean (SD) | 1.1 (±1.1) | 1.0 (±1.0) | 1.2 (±1.3) | 1.3 (±1.3) | 1.1 (±1.1) |  |
| Missing | 1 (0.4%) | 0 (0%) | 1 (2.1%) | 0 (0%) | 0 (0%) |  |

**Maternal Anthro descriptives**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | |
|  | **Total No. 253** | **CHEU Abnormal UmA-RI No. 15** | **CHEU Normal UmA-RI No. 46** | **CHUU Abnormal UmA-RI No. 19** | **CHUU Normal UmA-RI No. 173** | **P-value** |
| **UmbiBaby group** | | | | | | **< 0.0001** |
| HR-PEDF | 34 (13.4%) | 15 (100.0%) | 0 (0.0%) | 19 (100.0%) | 0 (0.0%) |  |
| LR-FT | 204 (80.6%) | 0 (0.0%) | 45 (97.8%) | 0 (0.0%) | 159 (91.9%) |  |
| LR-Prem | 15 (5.9%) | 0 (0.0%) | 1 (2.2%) | 0 (0.0%) | 14 (8.1%) |  |
| **UmA-RI** | | | | | | **< 0.0001** |
| Abnormal UmA-RI | 34 (13.4%) | 15 (100.0%) | 0 (0.0%) | 19 (100.0%) | 0 (0.0%) |  |
| Normal UmA-RI | 219 (86.6%) | 0 (0.0%) | 46 (100.0%) | 0 (0.0%) | 173 (100.0%) |  |
| Age (years) | 30.5 (±5.4) | 36.6 (±6.1) | 30.9 (±5.3) | 28.5 (±4.5) | 30.1 (±5.1) | **0.0006** |
| Weight (kg) | 76.5 (±20.8) | 63.1 (±15.4) | 79.8 (±24.6) | 69.7 (±20.2) | 77.5 (±19.7) | 0.21 |
| Height (cm) | 160.2 (±6.7) | 158.3 (±5.3) | 162.2 (±8.6) | 157.8 (±5.3) | 160.1 (±6.2) | 0.14 |
| Height (m) | 1.6 (±0.1) | 1.6 (±0.1) | 1.6 (±0.1) | 1.6 (±0.1) | 1.6 (±0.1) | 0.14 |
| BMI (kg/m²) | 29.8 (±7.8) | 25.1 (±5.2) | 30.1 (±8.4) | 27.9 (±7.4) | 30.3 (±7.7) | 0.46 |
| MUAC (cm): | 31.7 (±5.2) | 28.0 (±4.0) | 32.2 (±5.7) | 30.6 (±5.0) | 32.0 (±5.1) | 0.46 |
| **Maternal Triceps Skin Fold Thickness (mm)** | | | | | | 0.66 |
| Mean (SD) | 20.1 (±5.5) | 18.5 (±3.6) | 22.1 (±7.2) | 19.9 (±5.3) | 19.8 (±5.1) |  |
| Missing | 5 (2.0%) | 0 (0%) | 2 (4.3%) | 0 (0%) | 3 (1.7%) |  |
| The table gives description of the major characteristics, categorical variables:n(%) and continuous variables: mean(sd) | | | | | | |

**Bayles descriptive information**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Basic descriptive statistics for bayles data | | | | | | |
|  | **Total No. 253** | **CHEU Abnormal UmA-RI No. 14** | **CHEU Normal UmA-RI No. 46** | **CHUU Abnormal UmA-RI No. 19** | **CHUU Normal UmA-RI No. 174** | **P-value** |
| **UmbiBaby\_group** | | | | | | **< 0.0001** |
| HR-PEDF | 33 (13.0%) | 14 (100.0%) | 0 (0.0%) | 19 (100.0%) | 0 (0.0%) |  |
| LR-FT | 205 (81.0%) | 0 (0.0%) | 45 (97.8%) | 0 (0.0%) | 160 (92.0%) |  |
| LR-Prem | 15 (5.9%) | 0 (0.0%) | 1 (2.2%) | 0 (0.0%) | 14 (8.0%) |  |
| **UmA\_RI\_classification** | | | | | | **< 0.0001** |
| Abmormal UmA-RI | 33 (13.0%) | 14 (100.0%) | 0 (0.0%) | 19 (100.0%) | 0 (0.0%) |  |
| Normal UmA-RI | 220 (87.0%) | 0 (0.0%) | 46 (100.0%) | 0 (0.0%) | 174 (100.0%) |  |
| **Sex** | | | | | | 0.37 |
| female | 130 (51.4%) | 10 (71.4%) | 21 (45.7%) | 11 (57.9%) | 88 (50.6%) |  |
| male | 123 (48.6%) | 4 (28.6%) | 25 (54.3%) | 8 (42.1%) | 86 (49.4%) |  |
| Age\_(d) | 565.0 (±27.5) | 575.4 (±37.5) | 566.1 (±27.0) | 554.6 (±6.6) | 565.0 (±27.9) | 0.89 |
| Age\_(m) | 18.6 (±0.8) | 18.8 (±1.0) | 18.6 (±0.8) | 18.2 (±0.2) | 18.6 (±0.9) | 0.97 |
| Cognitive:\_Composite\_score | 99.5 (±10.8) | 93.9 (±12.9) | 99.9 (±10.2) | 98.2 (±11.7) | 100.0 (±10.6) | 0.022 |
| Language:\_Composite\_score | 89.3 (±12.3) | 90.9 (±15.8) | 88.2 (±11.3) | 90.6 (±10.6) | 89.4 (±12.4) | 0.52 |
| Motor:\_Composite\_score | 99.4 (±12.1) | 95.6 (±14.2) | 99.2 (±13.3) | 97.9 (±11.6) | 99.9 (±11.7) | 0.012 |
| The table gives description of the major characteristics, categorical variables:n(%) and continuous variables: mean(sd) | | | | | | |

**ADDITIONAL RESULTS**

**Maternal Haemoglobin Summary (Table 2)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Total No. 190** | **CHEU Abnormal UmA-RI No. 15** | **CHUU Normal UmA-RI No. 175** | **P-value** |
| **Haemoglobin\_category** | | | | **0.23** |
| Mild anaemia | 19 (10.0%) | 3 (20.0%) | 16 (9.1%) |  |
| Moderate anamia | 24 (12.6%) | 3 (20.0%) | 21 (12.0%) |  |
| Normal | 147 (77.4%) | 9 (60.0%) | 138 (78.9%) |  |
| **Maternal\_Hb\_Value** | 12.8 (±1.5) | 12.0 (±1.3) | 12.8 (±1.5) | 0.22 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Total No. 195** | **CHUU Abnormal UmA-RI No. 20** | **CHUU Normal UmA-RI No. 175** | **P-value** |
| **Haemoglobin\_category** | | | | **0.020** |
| Mild anaemia | 22 (11.3%) | 6 (30.0%) | 16 (9.1%) |  |
| Moderate anamia | 23 (11.8%) | 2 (10.0%) | 21 (12.0%) |  |
| Normal | 150 (76.9%) | 12 (60.0%) | 138 (78.9%) |  |
| **Maternal\_Hb\_Value** | 12.8 (±1.5) | 12.7 (±1.5) | 12.8 (±1.5) | 0.058 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Total No. 221** | **CHEU Normal UmA-RI No. 46** | **CHUU Normal UmA-RI No. 175** | **P-value** |
| **Haemoglobin\_category** | | | | 0.14 |
| Mild anaemia | 22 (10.0%) | 6 (13.0%) | 16 (9.1%) |  |
| Moderate anamia | 31 (14.0%) | 10 (21.7%) | 21 (12.0%) |  |
| Normal | 168 (76.0%) | 30 (65.2%) | 138 (78.9%) |  |
| **Maternal\_Hb\_Value** | 12.7 (±1.5) | 12.4 (±1.7) | 12.8 (±1.5) | 0.022 |

**#####################################################################################**

**Children Haemoglobin Summary (Table 2)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Total No. 193** | **CHEU Abnormal UmA-RI No. 15** | **CHUU Normal UmA-RI No. 178** | **P-value** |
| **Child\_Hb\_value\_(g/dL)** | 11.0 (±1.2) | 11.1 (±1.1) | 11.0 (±1.2) | 0.35 |
| **Anaemia\_category** | | | | **0.69** |
| Mild anaemia | 84 (43.5%) | 5 (33.3%) | 79 (44.4%) |  |
| Moderate anaemia | 9 (4.7%) | 1 (6.7%) | 8 (4.5%) |  |
| Normal | 100 (51.8%) | 9 (60.0%) | 91 (51.1%) |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Total No. 198** | **CHUU Abnormal UmA-RI No. 20** | **CHUU Normal UmA-RI No. 178** | **P-value** |
| **Child\_Hb\_value\_(g/dL)** | 11.0 (±1.2) | 10.9 (±1.4) | 11.0 (±1.2) | 0.34 |
| **Anaemia\_category** | | | | **0.15** |
| Mild anaemia | 87 (43.9%) | 8 (40.0%) | 79 (44.4%) |  |
| Moderate anaemia | 11 (5.6%) | 3 (15.0%) | 8 (4.5%) |  |
| Normal | 100 (50.5%) | 9 (45.0%) | 91 (51.1%) |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Total No. 225** | **CHEU Normal UmA-RI No. 47** | **CHUU Normal UmA-RI No. 178** | **P-value** |
| Child\_Hb\_value\_(g/dL) | 11.0 (±1.2) | 11.0 (±1.1) | 11.0 (±1.2) | 0.72 |
| **Anaemia\_category** | | | | 1.00 |
| Mild anaemia | 100 (44.4%) | 21 (44.7%) | 79 (44.4%) |  |
| Moderate anaemia | 10 (4.4%) | 2 (4.3%) | 8 (4.5%) |  |
| Normal | 115 (51.1%) | 24 (51.1%) | 91 (51.1%) |  |

**Anthropometric measurements and indices and Bayley-III mean composite scores in children at age 18 months**

**Child Anthropometric Measures (Table 3)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Total No. 225** | **CHEU Normal UmA-RI No. 47** | **CHUU Normal UmA-RI No. 178** | **P-value** |
| **Weight\_(kg)** | 10.8 (±1.6) | 10.7 (±1.8) | 10.9 (±1.6) | 0.39 |
| **Length\_(cm)** | 81.7 (±3.7) | 80.8 (±3.1) | 81.9 (±3.8) | 0.27 |
| **MUAC\_(cm)** | | | | 0.21 |
| Mean (SD) | 16.1 (±1.5) | 16.2 (±1.7) | 16.1 (±1.4) |  |
| Missing | 1 (0.4%) | 1 (2.1%) | 0 (0%) |  |
| **HC\_(cm)** | | | | 0.86 |
| Mean (SD) | 48.1 (±1.7) | 48.1 (±1.9) | 48.1 (±1.6) |  |
| Missing | 5 (2.2%) | 0 (0%) | 5 (2.8%) |  |
| **WHZ** | 0.1 (±1.3) | 0.2 (±1.5) | 0.1 (±1.2) | 0.29 |
| **HAZ** | -0.1 (±1.3) | -0.5 (±1.1) | -0.1 (±1.3) | 0.66 |
| **WAZ** | 0.0 (±1.2) | -0.1 (±1.3) | 0.0 (±1.2) | 0.39 |
| **HCZ** | | | | 0.18 |
| Mean (SD) | 0.9 (±1.2) | 0.9 (±1.3) | 0.9 (±1.2) |  |
| Missing | 5 (2.2%) | 0 (0%) | 5 (2.8%) |  |
| **MUACZ** | | | | 0.39 |
| Mean (SD) | 1.1 (±1.1) | 1.2 (±1.3) | 1.1 (±1.1) |  |
| Missing | 1 (0.4%) | 1 (2.1%) | 0 (0%) |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Total No. 193** | **CHEU Abnormal UmA-RI No. 15** | **CHUU Normal UmA-RI No. 178** | **P-value** |
| **Weight\_(kg)** | 10.8 (±1.5) | 9.9 (±1.0) | 10.9 (±1.6) | 0.29 |
| **Length\_(cm)** | 81.6 (±3.9) | 78.2 (±3.5) | 81.9 (±3.8) | 0.017 |
| **MUAC\_(cm)** | 16.1 (±1.4) | 16.0 (±1.4) | 16.1 (±1.4) | 0.54 |
| **HC\_(cm)** | | | | 0.99 |
| Mean (SD) | 48.0 (±1.6) | 47.1 (±1.2) | 48.1 (±1.6) |  |
| Missing | 5 (2.6%) | 0 (0%) | 5 (2.8%) |  |
| **WHZ** | 0.1 (±1.2) | 0.0 (±0.8) | 0.1 (±1.2) | 0.80 |
| **HAZ** | -0.1 (±1.3) | -1.3 (±1.3) | -0.1 (±1.3) | 0.091 |
| **WAZ** | 0.0 (±1.2) | -0.6 (±0.9) | 0.0 (±1.2) | 0.65 |
| **HCZ** | | | | 0.35 |
| Mean (SD) | 0.8 (±1.1) | 0.3 (±0.7) | 0.9 (±1.2) |  |
| Missing | 5 (2.6%) | 0 (0%) | 5 (2.8%) |  |
| **MUACZ** | 1.1 (±1.1) | 1.0 (±1.0) | 1.1 (±1.1) | 0.33 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Total No. 198** | **CHUU Abnormal UmA-RI No. 20** | **CHUU Normal UmA-RI No. 178** | **P-value** |
| Weight\_(kg) | 10.9 (±1.6) | 10.8 (±1.9) | 10.9 (±1.6) | 0.40 |
| Length\_(cm) | 81.8 (±3.8) | 81.0 (±4.1) | 81.9 (±3.8) | 0.054 |
| MUAC\_(cm) | 16.1 (±1.5) | 16.4 (±1.7) | 16.1 (±1.4) | 0.40 |
| **HC\_(cm)** | | | | 0.89 |
| Mean (SD) | 48.1 (±1.6) | 48.5 (±1.9) | 48.1 (±1.6) |  |
| Missing | 6 (3.0%) | 1 (5.0%) | 5 (2.8%) |  |
| WHZ | 0.1 (±1.2) | 0.1 (±1.3) | 0.1 (±1.2) | 0.38 |
| HAZ | -0.1 (±1.3) | -0.2 (±1.5) | -0.1 (±1.3) | 0.51 |
| WAZ | 0.0 (±1.2) | 0.0 (±1.5) | 0.0 (±1.2) | 0.23 |
| **HCZ** | | | | 0.068 |
| Mean (SD) | 0.9 (±1.2) | 1.3 (±1.5) | 0.9 (±1.2) |  |
| Missing | 6 (3.0%) | 1 (5.0%) | 5 (2.8%) |  |
| MUACZ | 1.1 (±1.1) | 1.3 (±1.3) | 1.1 (±1.1) | 0.58 |

**Bayles Summaries (Table 3)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Total No. 193** | **CHUU Abnormal UmA-RI No. 19** | **CHUU Normal UmA-RI No. 174** | **P-value** |
| **Cognitive:\_Composite\_score** | 99.8 (±10.7) | 98.2 (±11.7) | 100.0 (±10.6) | 0.54 |
| **Language:\_Composite\_score** | 89.5 (±12.2) | 90.6 (±10.6) | 89.4 (±12.4) | 0.99 |
| **Motor:\_Composite\_score** | 99.7 (±11.7) | 97.9 (±11.6) | 99.9 (±11.7) | 0.023 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Total No. 188** | **CHEU Abnormal UmA-RI No. 14** | **CHUU Normal UmA-RI No. 174** | **P-value** |
| **Cognitive:\_Composite\_score** | 99.5 (±10.9) | 93.9 (±12.9) | 100.0 (±10.6) | < 0.0001 |
| **Language:\_Composite\_score** | 89.5 (±12.7) | 90.9 (±15.8) | 89.4 (±12.4) | 0.25 |
| **Motor:\_Composite\_score** | 99.5 (±11.9) | 95.6 (±14.2) | 99.9 (±11.7) | 0.23 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Total No. 220** | **CHEU Normal UmA-RI No. 46** | **CHUU Normal UmA-RI No. 174** | **P-value** |
| **Cognitive:\_Composite\_score** | 100.0 (±10.5) | 99.9 (±10.2) | 100.0 (±10.6) | 0.14 |
| **Language:\_Composite\_score** | 89.1 (±12.2) | 88.2 (±11.3) | 89.4 (±12.4) | 0.15 |
| **Motor:\_Composite\_score** | 99.7 (±12.0) | 99.2 (±13.3) | 99.9 (±11.7) | 0.045 |

**#####################################################################################**

**#Table 4: Comparisons of mean hemoglobin concentrations and Bayley-III mean composite scores in HIV-exposed vs HIV-unexposed settings children and normal vs abnormal umbilical artery resistance index settings**

**Bayles (Table 4)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Total No. 253** | **Negative No. 193** | **Positive No. 60** | **P-value** |
| **Cognitive:\_Composite\_score** | 99.5 (±10.8) | 99.8 (±10.7) | 98.5 (±11.1) | 0.030 |
| **Language:\_Composite\_score** | 89.3 (±12.3) | 89.5 (±12.2) | 88.8 (±12.4) | 0.12 |
| **Motor:\_Composite\_score** | 99.4 (±12.1) | 99.7 (±11.7) | 98.4 (±13.5) | 0.18 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Total No. 253** | **Abmormal UmA-RI No. 33** | **Normal UmA-RI No. 220** | **P-value** |
| **Cognitive:\_Composite\_score** | 99.5 (±10.8) | 96.4 (±12.2) | 100.0 (±10.5) | 0.017 |
| **Language:\_Composite\_score** | 89.3 (±12.3) | 90.7 (±12.8) | 89.1 (±12.2) | 0.66 |
| **Motor:\_Composite\_score** | 99.4 (±12.1) | 96.9 (±12.6) | 99.7 (±12.0) | 0.068 |

**Children HB (Table 4)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Total No. 260** | **Abnormal UmA-RI No. 35** | **Normal UmA-RI No. 225** | **P-value** |
| **Child\_Hb\_value\_(g/dL)** | 11.0 (±1.2) | 11.0 (±1.3) | 11.0 (±1.2) | 0.17 |
| **Anaemia\_category** | | | | 0.21 |
| Mild anaemia | 113 (43.5%) | 13 (37.1%) | 100 (44.4%) |  |
| Moderate anaemia | 14 (5.4%) | 4 (11.4%) | 10 (4.4%) |  |
| Normal | 133 (51.2%) | 18 (51.4%) | 115 (51.1%) |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Total No. 260** | **Negative No. 198** | **Positive No. 62** | **P-value** |
| **Child\_Hb\_value\_(g/dL)** | 11.0 (±1.2) | 11.0 (±1.2) | 11.0 (±1.1) | 0.80 |
| **Anaemia\_category** | | | | 0.9 |
| Mild anaemia | 113 (43.5%) | 87 (43.9%) | 26 (41.9%) |  |
| Moderate anaemia | 14 (5.4%) | 11 (5.6%) | 3 (4.8%) |  |
| Normal | 133 (51.2%) | 100 (50.5%) | 33 (53.2%) |  |

**Maternal Hb**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Total No. 256** | **Abormal UmA-RI No. 35** | **Normal UmA-RI No. 221** | **P-value** |
| **Haemoglobin\_category** | | | | 0.027 |
| Mild anaemia | 31 (12.1%) | 9 (25.7%) | 22 (10.0%) |  |
| Moderate anamia | 36 (14.1%) | 5 (14.3%) | 31 (14.0%) |  |
| Normal | 189 (73.8%) | 21 (60.0%) | 168 (76.0%) |  |
| Maternal\_Hb\_Value | 12.7 (±1.5) | 12.4 (±1.4) | 12.7 (±1.5) | 0.43 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Total No. 256** | **Negative No. 195** | **Positive No. 61** | **P-value** |
| **Haemoglobin\_category** | | | | 0.10 |
| Mild anaemia | 31 (12.1%) | 22 (11.3%) | 9 (14.8%) |  |
| Moderate anamia | 36 (14.1%) | 23 (11.8%) | 13 (21.3%) |  |
| Normal | 189 (73.8%) | 150 (76.9%) | 39 (63.9%) |  |
| Maternal\_Hb\_Value | 12.7 (±1.5) | 12.8 (±1.5) | 12.3 (±1.6) | 0.081 |

**Table 5**

**Statistical analysis**

Correlation between maternal haemoglobin concentration and child Bayley-III composite scores and hemoglobin concentration was computed based on the following null and alternative hypothesis.

**Null:** There is no correlation between maternal haemoglobin concentration and child Bayley-III composite scores and hemoglobin concentration (r = 0).

**Alternative:** There is correlation between maternal haemoglobin concentration and child Bayley-III composite scores and hemoglobin concentration (r ≠ 0).

The bivariate variables were firstly checked if they are normally distributed or not using the Shapiro test of normality. The correlation of the bivariate normally distributed variables was then computed using a Pearson correlation test and alternatively the Spearman correlation test was performed on variables that were not normally distributed.

|  |  |  |
| --- | --- | --- |
|  | **Maternal hemoglobin concentration** | |
|  | **Correlation coefficient (r)** | **P-value** |
| **Total population** |  |  |
| Child hemoglobin concentration | 0.108 | 0.0835 |
| Cognitive domain | -0.048 | 0.4488 |
| Language domain | -0.080 | 0.2101 |
| Motor domain | -0.161 | **0.0109** |
| **CHUU** |  |  |
| Child hemoglobin concentration | 0.052 | 0.4776 |
| Cognitive domain | -0.082 | 0.2603 |
| Language domain | -0.042 | 0.5639 |
| Motor domain | -0.163 | **0.0247** |
| **CHEU** |  |  |
| Child hemoglobin concentration | 0.286 | **0.0279** |
| Cognitive domain | 0.046 | 0.727 |
| Language domain | -0.185 | 0.1601 |
| Motor domain | -0.202 | 0.1247 |
| **Normal UmA-RI** |  |  |
| Child hemoglobin concentration | 0.118 | 0.0791 |
| Cognitive domain | -0.082 | 0.2317 |
| Language domain | -0.068 | 0.3242 |
| Motor domain | -0.170 | **0.0128** |
| **Abnormal UmA-RI** |  |  |
| Child hemoglobin concentration | 0.140 | 0.4223 |
| Cognitive domain | 0.074 | 0.6837 |
| Language domain | -0.157 | 0.3839 |
| Motor domain | -0.180 | 0.3162 |