Table S1. Socio-demographic characteristics – semi-urban hospitals

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variablesa | Nyantende*n*=51 | Ciriri*n*=288 | Totalb*N*=339 | *P*-valuec | Effect size |
| *Socio-demographic characteristics of the mother* |  |  |  |  |  |
| Age of the mothers (years)< 25 years25 to 29 years30 to 34 years≥ 35 years | *n*=5125.0 (22.0, 29.0)23 (45.1)16 (31.4)5 (9.8)7 (13.7) | *n*=27926.0(22.0, 32.0)111 (39.8)73 (26.2)48 (17.2)47 (16.8) | *n*=33026.0 (22.0, 32.0)134 (40.6)89 (27.0)53 (16.1)54 (16.4) | 0.435‡0.483 | 0.0430.086 |
| ReligionChristian: catholicChristian: protestant, revival churchOther: Christian denomination, natural religion, no church | *n*=5132 (62.7)14 (27.5)5 (9.8) | *n*=285174 (61.1)104 (36.5)7 (2.5) | *n*=336206 (61.3)118 (35.1)12 (3.6) | **0.031†** | **0.150** |
| Marital statusMarried, living together with husbandMarried, husband living elsewhereDivorcedLiving with a partner without marriageSingle | *n*=4916 (32.7)1 (2.0)0 (0.0)32 (65.3)0 (0.0) | *n*=285106 (37.2)2 (0.7)4 (1.4)172 (60.4)1 (0.4) | *n*=334122 (36.5)3 (0.9)4 (1.2)204 (61.1)1 (0.3) | 0.595† | 0.079 |
| Education levelNever attended schoolAttended school < 3 yearsElementary level (attended school 3-6 years)Secondary level (attended school 7-12 years)Higher level of education | *n*=516 (11.8)6 (11.8)22 (43.1)17 (33.3)0 (0.0) | *n*=28624 (8.4)14 (4.9)101 (35.3)144 (50.3)3 (1.0) | *n*=33730 (8.9)20 (5.9)123 (36.5)161 (47.8)3 (0.9) | 0.087† | 0.153 |
| Main occupationFarmer (own farm)Farmer (farm of someone else)Small businessOther job (employed / self-employed)Without employmentStudent | *n*=5115 (29.4)8 (15.7)4 (7.8)5 (9.8)19 (37.3)0 (0.0) | *n*=2840 (0.0)0 (0.0)95 (33.5)22 (7.7)165 (58.1)2 (0.7) | *n*=33515 (4.5)8 (2.4)99 (29.6)27 (8.1)184 (54.9)2 (0.6) | **0.000†** | **0.650** |
| *Characteristics of the index infant* |  |  |  |  |  |
| Age (days) | *n*=512.0 (2.0, 3.0) | *n*=2883.0 (2.0, 4.0) | *n*=3393.0 (2.0, 4.0) | **0.000‡** | 0.241 |
| SexMaleFemale | *n*=5125 (49.0)26 (51.0) | *n*=288149 (51.7)139 (48.3) | *n*=339174 (51.3)165 (48.7) | 0.721 | 0.019 |

aCategorical variables are expressed as n (%) and continuous variables are expressed as mean ± SD / median (IQR).
bTotal frequencies represent total number of participants, frequencies per variable include all respectively valid cases; lack of corresponding sum of frequencies with total sample size is due to missing data.
cSignificantly different at P-value <0.05 (in bold); *P*-value was derived using t-test for continuous variables and chi-square analysis for categorical variables.
†Fisher’s exact test.
‡Mann-Whitney U test**.**

Table S2. Household characteristics – semi-urban hospitals

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variablesa | Nyantende*n*=51 | Ciriri*n*=288 | Totalb*N*=339 | *P*-valuec | Effect size |
| Head of householdMaleFemale | *n*=5149 (96.1)2 (3.9) | *n*=287280 (97.6)7 (2.4) | *n*=338329 (97.3)9 (2.7) | 0.630† | 0.033 |
| Number of household members1-45-9≥ 10 | *n*=516.0 (5.0, 7.0)11 (21.6)37 (72.5)3 (5.9) | *n*=2856.0 (4.0, 8.0)72 (25.3)160 (56.1)53 (18.6) | *n*=3366.0 (5.0, 8.0)83 (24.7)197 (58.6)56 (16.7) | 0.323‡**0.040** | 0.054**0.138** |
| Number of children per household1-23-8≥ 9 | *n*=514.0 (3.0, 5.0)86 (25.6)221 (65.8)29 (8.6) | *n*=2854.0 (2.0, 6.0)45 (34.4)76 (58.0)10 (7.6) | *n*=3364.0 (2.0, 6.0)86 (25.6)221 (65.8)29 (8.6) | 0.340‡0.167 | 0.0520.088 |
| Main source of income *(multiple answers possible)\**Job of the husbandJob of the motherOwn farmJob of another family memberOther | *n*=4940 (81.6)17 (34.7)8 (16.3)0 (0.0)1 (2.0) | *n*=275242 (88.0)115 (41.8)2 (0.7)9 (3.3)1 (0.4) | *n*=324282 (87.0)132 (40.7)10 (3.1)9 (2.8)2 (0.6) | 0.2220.350**0.000†**0.365†0.280† | 0.0680.0520.3230.0710.077 |
| Food sources *(multiple answers possible)\**Local marketOwn agricultural landOwn vegetable gardenOwn livestockOther | *n*=5148 (94.1)24 (47.1)28 (54.9)0 (0.0)0 (0.0) | *n*=285284 (99.6)23 (8.1)49 (17.2)0 (0.0)1 (0.4) | *n*=336332 (98.8)47 (14.0)77 (22.9)0 (0.0)1 (0.3) | **0.012†****0.000****0.000**-1.000† | **0.183****0.403****0.322**-0.023 |

aCategorical variables are expressed as n (%) and continuous variables are expressed as mean ± SD / median (IQR).
bTotal frequencies represent total number of participants, frequencies per variable include all respectively valid cases; lack of corresponding sum of frequencies with total sample size is due to missing data.
cSignificantly different at P-value <0.05 (in bold); *P*-value was derived using t-test for continuous variables and chi-square analysis for categorical variables.
†Fisher’s exact test.
‡Mann-Whitney U test.\*Globally significant after adjustment by Bonferroni.

Table S3. Parity and family planning – semi-urban hospitals

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variablesa | Nyantende*n*=51 | Ciriri*n*=288 | Totalb*N*=339 | *P*-valuec | Effect size |
| *Parity* |  |  |  |  |  |
| Number of pregnancies (including the newborn) | *n*=513.0 (2.0, 5.0) | *n*=2824.0 (2.0, 7.0) | *n*=3334.0 (2.0, 6.5) | 0.595‡ | 0.029 |
| Number of children born alive (including the newborn) | *n*=513.0 (2.0, 5.0) | *n*=2813.0 (2.0, 6.0) | *n*=3323.0 (2.0, 6.0) | 0.478‡ | 0.039 |
| Birth space between the last pregnancies9-12 months1-2 years2-3 years> 3 yearsNot relevant (primipara) | *n*=501 (2.0)22 (44.0)17 (34.0)1 (2.0)9 (18.0) | *n*=28512 (4.2)115 (40.4)88 (30.9)15 (5.3)55 (19.3) | *n*=33513 (3.9)137 (40.9)105 (31.3)16 (4.8)64 (19.1) | 0.890† | 0.073 |
| *Family planning* |  |  |  |  |  |
| Knowing any benefit / importance of family planningYesNo | *n*=4833 (68.8)15 (31.3) | *n*=277214 (77.3)63 (22.7) | *n*=325247 (76.0)78 (24.0) | 0.203 | 0.071 |
| Importance of family planning *(multiple answers possible)\**Planned pregnancyHealth benefits for motherEconomically beneficialFight malnutritionChild spacingOtherDo not know | *n*=4819 (39.6)7 (14.6)4 (8.3)2 (4.2)3 (6.3)1 (2.1)15 (31.3) | *n*=277137 (49.5)140 (50.5)82 (29.6)65 (23.5)20 (7.2)5 (1.8)63 (22.7) | *n*=449156 (48.0)147 (45.2)86 (26.5)67 (20.6)23 (7.1)6 (1.8)78 (24.0) | 0.206**0.000****0.002****0.002**1.000†1.000†0.203 | 0.070**0.256****0.171****0.169**0.0130.0070.071 |
| Knowledge about contraceptive methodsYesNo | *n*=496 (12.2)43 (87.8) | *n*=28173 (26.0)208 (74.0) | *n*=33079 (23.9)251 (76.1) | **0.038** | **0.114** |
| Contraceptive methods known *(multiple answers possible)*Observation of the cycleThree-month injectionBirth control pillLactational amenorrheaCondomIntrauterine deviceImplantDo not know | *n*=492 (4.1)2 (4.1)1 (2.0)0 (0.0)0 (0.0)0 (0.0)0 (0.0)1 (2.0) | *n*=27940 (14.3)24 (8.6)25 (9.0)3 (1.1)2 (0.7)2 (0.7)1 (0.4)2 (0.7) | *n*=32842 (12.8)26 (7.9)26 (7.9)3 (0.9)2 (0.6)2 (0.6)1 (0.3)3 (0.9) | **0.048**0.395†0.148†1.000†1.000†1.000†1.000†0.386† | **0.109**0.0600.0910.0400.0330.0330.0230.050 |
| Practiced family planningYesNo | *n*=492 (4.1)47 (95.9) | *n*=28455 (19.4)229 (80.6) | *n*=33357 (17.1)276 (82.9) | **0.009** | **0.144** |

aCategorical variables are expressed as n (%) and continuous variables are expressed as mean ± SD / median (IQR).
bTotal frequencies represent total number of participants, frequencies per variable include all respectively valid cases; lack of corresponding sum of frequencies with total sample size is due to missing data.
cSignificantly different at P-value <0.05 (in bold); *P*-value was derived using t-test for continuous variables and chi-square analysis for categorical variables.
†Fisher’s exact test.
‡Mann-Whitney U test.
\*Globally significant after adjustment by Bonferroni.

Table S4. Health issues during pregnancy (self-reported) – semi-urban hospitals

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variablesa | Nyantende*n*=51 | Ciriri*n*=288 | Totalb*N*=339 | *P*-valuec | Effect size |
| Health problem during pregnancyYesNo | *n*=5124 (47.1)27 (52.9) | *n*=28651 (17.8)235 (82.2) | *n*=33775 (22.3)262 (77.7) | **0.000** | **0.252** |
| Health problem during pregnancy / perinatal *(multiple answers possible)*MalariaUrinary / genital / uro-genital infectionHemorrhageThreat of premature delivery / abortionInfection (not precised)NauseaHypertensionOther | *n*=2312 (52.2)1 (4.3)1 (4.3)4 (17.4)5 (21.7)0 (0.0)0 (0.0)2 (8.7) | *n*=5118 (35.3)11 (21.6)7 (13.7)5 (9.8)1 (2.0)3 (5.9)1 (2.0)9 (17.6) | *n*=7430 (40.5)12 (16.2)8 (10.8)9 (12.2)6 (8.1)3 (4.1)1 (1.4)11 (14.9) | 0.1710.090†0.422†0.446†**0.010†**0.548†1.000†0.485† | 0.1590.2160.1400.107**0.335**0.1380.0790.116 |
| Trimester of health problem during pregnancy *(multiple answers possible)*FirstSecondThird | *n*=249 (37.5)14 (58.3)7 (29.2) | *n*=5119 (37.3)27 (52.9)17 (33.3) | *n*=7528 (37.3)41 (54.7)24 (32.0) | 0.9840.6620.718 | 0.0020.0510.042 |
| Visit of a health facility at health problem during pregnancyYesNo  | *n*=2320 (87.0)3 (13.0) | *n*=5141 (80.4)10 (19.6) | *n*=7461 (82.4)13 (17.6) | 0.743† | 0.080 |
| Taking medicine at health problem during pregnancyYesNo  | *n*=2120 (95.2)1 (4.8) | *n*=4443 (97.7)1 (2.3) | *n*=6563 (96.9)2 (3.1) | 0.545† | 0.067 |
| Medication during pregnancyYesNo | *n*=4241 (97.6)1 (2.4) | *n*=280256 (91.4)24 (8.6) | *n*=322297 (92.2)25 (7.8) | 0.223† | 0.078 |
| Type of medication during pregnancy *(multiple answers possible)\**Antimalarial drugs (*n*=447)Deworming (*n*=446)Antibiotics, antifungal (*n*=450)Pain killer (*n*=448)Pregnancy-related medication (*n*=447)Vaccination (*n*=446)Treatment of nausea (*n*=446)Other (n=446) | *n*=36-4035 (94.6)29 (80.6)10 (25.0)3 (7.9)3 (8.1)2 (5.6)0 (0.0)0 (0.0) | *n*=280246 (87.9)250 (89.3)12 (4.3)11 (3.9)10 (3.6)0 (0.0)2 (0.7)6 (2.1) | *n*=316-320281 (88.6)279 (88.3)22 (6.9)14 (4.4)13 (4.1)2 (0.6)2 (0.6)6 (1.9) | 0.282†0.163†**0.000†**0.227†0.184†**0.013†**1.000†1.000† | 0.0680.086**0.271**0.0630.073**0.223**0.0290.050 |
| Diagnosis of anemia during pregnancyYesNo | *n*=513 (5.9)48 (94.1) | *n*=2879 (3.1)278 (96.9) | *n*=33812 (3.6)326 (96.4) | 0.401† | 0.053 |
| Vision problems at dawn during pregnancyYesNo | *n*=512 (3.9)49 (96.1) | *n*=28620 (7.0)266 (93.0) | *n*=33722 (6.5)315 (93.5) | 0.550† | 0.045 |
| Vision problems at daytime during pregnancyYesNo | *n*=511 (2.0)50 (98.0) | *n*=28222 (7.8)260 (92.2) | *n*=33323 (6.9)310 (93.1) | 0. 225† | 0.083 |
| Use of mosquito net during pregnancyYesNo | *n*=5146 (90.2)5 (9.8) | *n*=287258 (89.9)29 (10.1) | *n*=338304 (89.9)34 (10.1) | 0.948 | 0.004 |

aCategorical variables are expressed as n (%).
bTotal frequencies represent total number of participants, frequencies per variable include all respectively valid cases; lack of corresponding sum of frequencies with total sample size is due to missing data.
cSignificantly different at P-value <0.05 (in bold); *P*-value was derived using chi-square analysis for categorical variables.
†Fisher’s exact test.
\*Globally significant after adjustment by Bonferroni.

Table S5. Modalities of delivery and initiation of breastfeeding – semi-urban hospitals

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variablesa | Nyantende*n*=51 | Ciriri*n*=288 | Totalb*n*=339 | *P*-valuec | Effect size |
| Mode of deliveryVaginalCesarean section | *n*=5142 (82.4)9 (17.6) | *n*=288207 (71.9)81 (28.1) | *n*=339249 (73.5)90 (26.5) | 0.118 | 0.118 |
| Time of cord clampingEarly cord clamping (≤ 1 min after birth)Late cord clamping (≥ 2 min after birth, recommended) | *n*=512 (3.9)49 (96.1) | *n*=28615 (5.2)271 (94.8) | *n*=33717 (5.0)320 (95.0) | 1.000† | 0.022 |
| Initiation of breastfeeding1st hour after birth2-6 hours after birth7-12 hours after birth13-24 hours after birth2-3 days after birthNot yet | *n*=5046 (92.0)4 (8.0)0 (0.0)0 (0.0)0 (0.0)0 (0.0) | *n*=287270 (94.1)16 (5.6)1 (0.3)0 (0.0)0 (0.0)0 (0.0) | *n*=337316 (93.8)20 (5.9)1 (0.3)0 (0.0)0 (0.0)0 (0.0) | 0.588† | 0.043 |

aCategorical variables are expressed as n (%).
bTotal frequencies represent total number of participants, frequencies per variable include all respectively valid cases; lack of corresponding sum of frequencies with total sample size is due to missing data.
cSignificantly different at P-value <0.05 (in bold); *P*-value was derived using chi-square analysis for categorical variables.
†Fisher’s exact test.

Table S6. Anthropometrics – semi-urban hospitals

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variablesa | Nyantende*n*=51 | Ciriri*n*=288 | Totalb*n*=339 | *P*-valuec | Effect size |
| *Mothers’ nutritional status (first week postpartum)* |
| MUAC (cm) | *n*=5126.2(25.3, 28.1) | *n*=28826.8(24.6, 29.0) | *n*=33926.7(24.6, 29.0) | 0.986‡ | 0.001 |
| *Index infants’ nutritional status at birth* |  |  |  |  |  |
| Birth weight (g) | *n*=513194 ± 444 | *n*=2883275 ± 443 | *n*=3393263 ± 444 | 0.226 | -0.184 |
| Low birth weight\*YesNo | *n*=513 (5.9)48 (94.1) | *n*=2886 (2.1)282 (97.9) | *n*=3399 (2.7)330 (97.3) | 0.139† | 0.084 |
| Weight per gestational age z-score | *n*=43-0.2 ±1.1 | *n*=2800.1 ± 1.0 | *n*=3230.1 ±1.1 | 0.101 | -0.270 |
| Weight per gestational age centile | *n*=4348.6(11.3, 73.9) | *n*=28055.8(25.2, 80.6) | *n*=32355.7(24.2, 79.2) | 0.166‡ | 0.077 |
| Length per gestational age z-score | *n*=430.1 ± 1.3 | *n*=280-0.0 ± 1.1 | *n*=323-0.0 ± 1.1 | 0.475 | 0.139 |
| Length per gestational age centile | *n*=4356.9(15.3, 89.2) | *n*=28051.4(21.9, 74.8) | *n*=32351.7(21.8, 77.2) | 0.431‡ | -0.044 |
| Small-for-gestational age\* in weightYesNo | *n*=434 (9.3)39 (90.7) | *n*=2806 (2.1)274 (97.9) | *n*=32310 (3.1)313 (96.9) | **0.032†** | **0.140** |
| Small-for-gestational age\* in lengthYesNo | *n*=433 (7.0)40 (93.0) | *n*=28012 (4.3)268 (95.7) | *n*=32315 (4.6)308 (95.4) | 0.432† | 0.043 |
| *Index infants’ nutritional status (first week postpartum)* |
| Weight-for-Length z-score (WLZ) | *n*=50-0.5 ±1.2 | *n*=288-0.2 ±1.0 | *n*=459-0.2 ±1.0 | **0.028** | **-0.338** |
| Length-for-Age z-score (LAZ) | *n*=51-0.3 ±1.1 | *n*=288-0.6 ±1.0 | *n*=465-0.5 ±1.0 | 0.062 | 0.285 |
| Weight-for-Age z-score (WAZ) | *n*=51-0.4 ±0.9 | *n*=288-0.4 ±0.9 | *n*=469-0.4 ±0.9 | 0.998 | 0.000 |
| Body Mass Index (BMI) | *n*=5112.7(12.0, 13.6) | *n*=28812.9(12.3, 13.7) | *n*=46512.9(12.2, 13.6) | 0.284‡ | 0.058 |
| BMI-for-Age z-score (BAZ) | *n*=51-0.5(-1.1, 0.2) | *n*=288-0.3(-0.9, 0.3) | *n*=463-0.3(-0.9, 0.3) | 0.268‡ | 0.060 |

aCategorical variables are expressed as n (%) and continuous variables are expressed as mean ± SD / median (IQR).
bTotal frequencies represent total number of participants, frequencies per variable include all respectively valid cases; lack of corresponding sum of frequencies with total sample size is due to values out of range for calculating scores.
cSignificantly different at P-value <0.05 (in bold); *P*-value was derived using t-test for continuous variables and chi-square analysis for categorical variables.
†Fisher’s exact test.
‡Mann-Whitney U test.
\*Low birth weight: < 2500g; Small-for-gestational age in weight/length: < ‑2 z-score.

Table S7. Nutritional aspects during pregnancy (retrospective assessment) – semi-urban hospitals

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variablesa | Nyantende*n*=51 | Ciriri*n*=288 | Totalb*n*=339 | *P*-valuec | Effect size |
| Main interest regarding diet during pregnancy *(multiple answers possible)\**Good health, strength, energyQualityQuantityGood health, weight, growth of the fetusIncreasing weightEasy deliveryAppetiteOther (had no appetite, requirement of means, not precised)No interestDo not know | *n*=499 (18.4)7 (14.3)0 (0.0)1 (2.0)3 (6.1)0 (0.0)1 (2.0)1 (2.0)12 (24.5)15 (30.6) | *n*=251123 (49.0)53 (21.1)6 (2.4)10 (4.0)6 (2.4)1 (0.4)1 (0.4)4 (1.6)9 (3.6)41 (16.3) | *n*=300132 (44.0)60 (20.0)6 (2.0)11 (3.7)9 (3.0)1 (0.3)2 (0.7)5 (1.7)21 (7.0)56 (18.7) | **0.000**0.2740.594†1.000†0.168†1.000†0.300†0.593†**0.000†****0.019** | **0.228**0.0630.0630.0380.0810.0260.0750.013**0.303****0.135** |
| Teacher about nutrition during pregnancy *(multiple answers possible)*Nurse / nutritionist / doctorFriendMotherMother-in-lawMediaOther (family member, student, passenger)No-oneDo not know | *n*=5029 (58.0)0 (0.0)0 (0.0)0 (0.0)0 (0.0)2 (4.0)19 (38.0)0 (0.0) | *n*=279124 (44.4)28 (10.0)28 (10.0)6 (2.2)1 (0.4)2 (0.7)148 (53.0)0 (0.0) | *n*=329153 (46.5)28 (8.5)28 (8.5)6 (1.8)1 (0.3)4 (1.2)167 (50.8)0 (0.0) | 0.077**0.012†****0.012†**0.596†1.000†0.111†0.050- | 0.098**0.129****0.129**0.0580.0230.1080.108- |
| Omitted foods during pregnancyYesNo | *n*=508 (16.0)42 (84.0) | *n*=28816 (5.6)272 (94.4) | *n*=33824 (7.1)314 (92.9) | **0.015** | **0.144** |
| Food taboo for pregnancyYesNo | *n*=501 (2.0)49 (98.0) | *n*=28710 (3.5)277 (96.5) | *n*=33711 (3.3)326 (96.7) | 1.000† | 0.030 |
| Supplement intake during pregnancyYesNo | *n*=4036 (90.0)4 (10.0) | *n*=279249 (89.2)30 (10.8) | *n*=319285 (89.3)34 (10.7) | 1.000† | 0.008 |

aCategorical variables are expressed as n (%).
bTotal frequencies represent total number of participants, frequencies per variable include all respectively valid cases; lack of corresponding sum of frequencies with total sample size is due to missing data.
cSignificantly different at P-value <0.05 (in bold); *P*-value was derived using chi-square analysis for categorical variables.
†Fisher’s exact test.
\*Globally significant after adjustment by Bonferroni.

Table S8. Socio-demographic characteristics – missing values

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variablesa | Nyantende*n*=51 | Ciriri*n*=288 | Nyangezi*n*=131 | Total*N*=470 |
| *Socio-demographic characteristics of the mother* |  |  |  |  |
| Age of the mothersDo not knowMissing | 0 (0.0)0 (0.0) | 1 (0.3)8 (2.8) | 0 (0.0)2 (1.5) | 1 (0.2)10 (2.1) |
| ReligionMissing | 0 (0.0) | 3 (1.0) | 0 (0.0) | 3 (0.6) |
| Marital statusNo answerMissing | 2 (3.9)0 (0.0) | 0 (0.0)3 (1.0) | 0 (0.0)1 (0.8) | 2 (0.4)4 (0.9) |
| Education levelNo answerMissing | 0 (0.0)0 (0.0) | 0 (0.0)2 (0.7) | 1 (0.8)0 (0.0) | 1 (0.2)2 (0.4) |
| Main occupationMissing | 0 (0.0) | 4 (1.4) | 0 (0.0) | 4 (0.9) |
| *Characteristics of the index infant* |  |  |  |  |
| Age (days)No missing values |  |  |  |  |
| SexNo missing values |  |  |  |  |

aCategorical variables are expressed as n (%).

Table S9. Household characteristics – missing values

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variablesa | Nyantende*n*=51 | Ciriri*n*=288 | Nyangezi*n*=131 | Total*N*=470 |
| Head of householdMissing | 0 (0.0) | 1 (0.3) | 0 (0.0) | 1 (0.2) |
| Number of household membersNo answerMissing | 0 (0.0)0 (0.0) | 1 (0.3)2 (0.7) | 0 (0.0)0 (0.0) | 1 (0.2)2 (0.4) |
| Number of children per householdNo answerMissing | 0 (0.0)0 (0.0) | 1 (0.3)2 (0.7) | 0 (0.0)0 (0.0) | 1 (0.2)2 (0.4) |
| Main source of incomeDo not knowNo answerMissing | 1 (2.0)0 (0.0)1 (2.0) | 8 (2.8)1 (0.3)4 (1.4) | 21 (16.0)0 (0.0)1 (0.8) | 30 (6.4)1 (0.2)6 (1.3) |
| Food sourcesDo not knowMissing | 0 (0.0)0 (0.0) | 0 (0.0)3 (1.0) | 4 (3.1)0 (0.0) | 4 (0.9)3 (0.6) |

aCategorical variables are expressed as n (%)**.**

Table S10. Parity and family planning – missing values

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variablesa | Nyantende*n*=51 | Ciriri*n*=288 | Nyangezi*n*=131 | Total*N*=470 |
| *Parity* |  |  |  |  |
| Number of pregnancies (including the newborn)Missing | 0 (0.0) | 6 (2.1) | 4 (3.1) | 10 (2.1) |
| Number of children born alive (including the newborn)No answerMissing | 0 (0.0)0 (0.0) | 1 (0.3)6 (2.1) | 0 (0.0)1 (0.8) | 1 (0.2)7 (1.5) |
| Birth space between the last pregnanciesDo not knowNo answerMissing | 0 (0.0)0 (0.0)1 (2.0) | 0 (0.0)0 (0.0)3 (1.0) | 1 (0.8)7 (5.3)1 (0.8) | 1 (0.2)7 (1.5)5 (1.1) |
| *Family planning* |  |  |  |  |
| Knowing any benefit / importance of family planningNo answerMissing | 2 (3.9)1 (2.0) | 9 (3.1)2 (0.7) | 7 (5.3)0 (0.0) | 18 (3.8)3 (0.6) |
| Importance of family planningNo answerMissing | 2 (3.9)1 (2.0) | 9 (3.1)2 (0.7) | 7 (5.3)0 (0.0) | 18 (3.8)3 (0.6) |
| Knowledge about contraceptive methodsDo not knowMissing | 1 (2.0)1 (2.0) | 6 (2.1)1 (0.3) | 5 (3.8)0 (0.0) | 12 (2.6)2 (0.4) |
| Contraceptive methods knownNo answerNot applicableMissing | 0 (0.0)2 (3.9)0 (0.0) | 0 (0.0)7 (2.4)2 (0.7) | 2 (1.5)5 (3.8)4 (3.1) | 2 (0.4)14 (3.0)6 (1.3) |
| Practiced family planningDo not knowNo answerMissing | 0 (0.0)1 (2.0)1 (2.0) | 1 (0.3)1 (0.3)2 (0.7) | 1 (0.8)0 (0.0)1 (0.8) | 2 (0.4)2 (0.4)4 (0.9) |

aCategorical variables are expressed as n (%)**.**

Table S11. Health issues during pregnancy (self-reported) – missing values

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variablesa | Nyantende*n*=51 | Ciriri*n*=288 | Nyangezi*n*=131 | Total*N*=470 |
| Health problem during pregnancyMissing | 0 (0.0) | 2 (0.7) | 0 (0.0) | 2 (0.4) |
| Health problem during pregnancy / perinatal – type of diseaseDo not knowNo answerNot applicable | 1 (2.0)0 (0.0)27 (52.9) | 0 (0.0)0 (0.0)237 (82.3) | 0 (0.0)1 (0.8)97 (74.0) | 1 (0.2)1 (0.2)361 (76.8) |
| Trimester of health problem during pregnancyNot applicable | 27 (52.9) | 237 (82.3) | 97 (74.0) | 361 (76.8) |
| Visit of a health facility at health problem during pregnancyNot applicableMissing | 27 (52.9)1 (2.0) | 237 (82.3)0 (0.0) | 97 (74.0)0 (0.0) | 361 (76.8)1 (0.2) |
| Taking medicine at health problem during pregnancyDo not knowNot applicableMissing | 2 (3.9)27 (52.9)1 (2.0) | 0 (0.0)237 (82.3)7 (2.4) | 4 (3.1)97 (74.0)1 (0.8) | 6 (1.3)361 (76.8)9 (1.9) |
| Medication during pregnancyDo not know\*Missing | 7 (13.7)2 (3.9) | 0 (0.0)8 (2.8) | 0 (0.0)1 (0.8) | 7 (1.5)11 (2.3) |
| Antimalarial drugs during pregnancyDo not know\*\*Not applicableMissing | 12 (23.5)0 (0.0)2 (3.9) | 0 (0.0)1 (0.3)7 (2.4) | 0 (0.0)1 (0.8)0 (0.0) | 12 (2.6)2 (0.4)9 (1.9) |
| Deworming during pregnancyDo not know\*\*Not applicableMissing | 13 (25.5)0 (0.0)2 (3.9) | 0 (0.0)1 (0.3)7 (2.4) | 0 (0.0)1 (0.8)0 (0.0) | 13 (2.8)2 (0.4)9 (1.9) |
| Antibiotics, antifungal during pregnancyDo not know\*\*Not applicableMissing | 9 (17.6)0 (0.0)2 (3.9) | 0 (0.0)1 (0.3)7 (2.4) | 0 (0.0)1 (0.8)0 (0.0) | 9 (1.9)2 (0.4)9 (1.9) |
| Pain killer during pregnancyDo not know\*\*Not applicableMissing | 11 (21.6)0 (0.0)2 (3.9) | 0 (0.0)1 (0.3)7 (2.4) | 0 (0.0)1 (0.8)0 (0.0) | 11 (2.3)2 (0.4)9 (1.9) |
| Pregnancy-related medication during pregnancyDo not know\*\*Not applicableMissing | 12 (23.5)0 (0.0)2 (3.9) | 0 (0.0)1 (0.3)7 (2.4) | 0 (0.0)1 (0.8)0 (0.0) | 12 (2.6)2 (0.4)9 (1.9) |
| Vaccination during pregnancyDo not know\*\*Not applicableMissing | 13 (25.5)0 (0.0)2 (3.9) | 0 (0.0)1 (0.3)7 (2.4) | 0 (0.0)1 (0.8)0 (0.0) | 13 (2.8)2 (0.4)9 (1.9) |
| Treatment of nausea during pregnancyDo not know\*\*Not applicableMissing | 13 (25.5)0 (0.0)2 (3.9) | 0 (0.0)1 (0.3)7 (2.4) | 0 (0.0)1 (0.8)0 (0.0) | 13 (2.8)2 (0.4)9 (1.9) |
| Other medication during pregnancyDo not know\*\*Not applicableMissing | 13 (25.5)0 (0.0)2 (3.9) | 0 (0.0)1 (0.3)7 (2.4) | 0 (0.0)1 (0.8)0 (0.0) | 13 (2.8)2 (0.4)9 (1.9) |
| Diagnosis of anemia during pregnancyDo not knowNo answer | 0 (0.0)0 (0.0) | 0 (0.0)1 (0.3) | 2 (1.5)2 (1.5) | 2 (0.4)3 (0.6) |
| Vision problems at dawn during pregnancyNo answerMissing | 0 (0.0)0 (0.0) | 0 (0.0)2 (0.7) | 1 (0.8)1 (0.8) | 1 (0.2)3 (0.6) |
| Vision problems at daytime during pregnancyNo answerMissing | 0 (0.0)0 (0.0) | 3 (1.0)3 (1.0) | 0 (0.0)1 (0.8) | 3 (0.6)4 (0.9) |
| Use of mosquito net during pregnancyMissing | 0 (0.0) | 1 (0.3) | 0 (0.0) | 1 (0.2) |

aCategorical variables are expressed as n (%).
\*Mother took anything but could not tell if medication or supplementation.
\*\*Mother took medication but did not know the type of at least one of them.

Table S12. Modalities of delivery and initiation of breastfeeding – missing values

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variablesa | Nyantende*n*=51 | Ciriri*n*=288 | Nyangezi*n*=131 | Total*n*=470 |
| Mode of deliveryNo missing answers |  |  |  |  |
| Time of cord clampingNot knownMissing | 0 (0.0)0 (0.0) | 0 (0.0)2 (0.7) | 1 (0.8)18 (13.7) | 1 (0.2)20 (4.3) |
| Initiation of breastfeedingMissing | 1 (2.0) | 1 (0.3) | 0 (0.0) | 2 (0.4) |

aCategorical variables are expressed as n (%).

Table S13. Anthropometrics – missing values

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variablesa | Nyantende*n*=51 | Ciriri*n*=288 | Nyangezi*n*=131 | Total*n*=470 |
| *Mothers’ nutritional status (first week postpartum)* |
| MUAC (cm)No missing values |  |  |  |  |
| *Index infants’ nutritional status at birth* |  |  |  |  |
| Birth weight (g)No missing values |  |  |  |  |
| Low birth weightNo missing values |  |  |  |  |
| Weight per gestational age z-scoreMissing | 8 (15.7) | 8 (2.8) | 2 (1.5) | 18 (3.8) |
| Weight per gestational age centileMissing | 8 (15.7) | 8 (2.8) | 2 (1.5) | 18 (3.8) |
| Length per gestational age z-scoreImplausible value (WHO definition)Missing | 0 (0.0)8 (15.7) | 0 (0.0)8 (2.8) | 2 (1.5)5 (3.8) | 2 (0.4)21 (4.5) |
| Length per gestational age centileImplausible value (WHO definition)Missing | 0 (0.0)8 (15.7) | 0 (0.0)8 (2.8) | 2 (1.5)5 (3.8) | 2 (0.4)21 (4.5) |
| Small-for-gestational age in weightMissing | 8 (15.7) | 8 (2.8) | 2 (1.5) | 18 (3.8) |
| Small-for-gestational age in lengthImplausible value (WHO definition)Missing | 0 (0.0)8 (15.7) | 0 (0.0)8 (2.8) | 2 (1.5)5 (3.8) | 2 (0.4)21 (4.5) |
| *Index infants’ nutritional status (first week postpartum)* |
| Weight-for-Length z-score (WLZ)z-score not calculated (missing, implausible)z-score out of valid range | 1 (2.0)0 (0.0) | 0 (0.0)0 (0.0) | 7 (5.3)3 (2.3) | 8 (1.7)3 (0.6) |
| Length-for-Age z-score (LAZ)z-score not calculated (missing, implausible) | 0 (0.0) | 0 (0.0) | 5 (3.8) | 5 (1.1) |
| Weight-for-Age z-score (WAZ)z-score not calculated (missing, implausible) | 0 (0.0) | 0 (0.0) | 1 (0.8) | 1 (0.2) |
| Body Mass Index (BMI)BMI not calculated (missing, implausible) | 0 (0.0) | 0 (0.0) | 5 (3.8) | 5 (1.1) |
| BMI-for-Age z-score (BAZ)z-score not calculated (missing, implausible)z-score out of valid range  | 0 (0.0)0 (0.0) | 0 (0.0)0 (0.0) | 5 (3.8)2 (1.5) | 5 (1.1)2 (0.4) |

aCategorical variables are expressed as n (%)

Table S14. Nutritional aspects during pregnancy (retrospective assessment) – missing values

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variablesa | Nyantende*n*=51 | Ciriri*n*=288 | Nyangezi*n*=131 | Total*n*=470 |
| *Nutrition during pregnancy* |  |  |  |  |
| Main interest regarding diet during pregnancyNo answerMissing | 2 (3.9)0 (0.0) | 36 (12.5)1 (0.3) | 8 (6.1)3 (2.3) | 46 (9.8)4 (0.9) |
| Teacher about nutrition during pregnancyNo answerMissing | 0 (0.0)1 (2.0) | 7 (2.4)2 (0.7) | 12 (9.2)0 (0.0) | 19 (4.0)3 (0.6) |
| Omitted foods during pregnancyMissing | 1 (2.0) | 0 (0.0) | 1 (0.8) | 2 (0.4) |
| Food taboo for pregnancyMissing | 1 (2.0) | 1 (0.3) | 0 (0.0) | 2 (0.4) |
| Supplement intake during pregnancyDo not know\*Missing | 10 (19.6)1 (2.0) | 0 (0.0)9 (3.1) | 0 (0.0)1 (0.8) | 10 (2.1)11 (2.3) |

aCategorical variables are expressed as n (%). \* Mother took anything but could not tell if medication or supplementation.

Table S15. Predictor variables for simple linear regression analysis

|  |  |
| --- | --- |
| Independent variables | Literature on associations with birth weight, LBW, SGA |
| *Residence* |  |
| Hospital locationSemi-urban, rural | (Kaur et al., 2019; Tadese et al., 2021) |
| *Socio-demographics of the household* |  |
| Household head by sexMale, female | (Acharya et al., 2018; Kebede et al., 2021)a |
| Household size (number of household members) | (Hien & Kam, 2008; Acharya et al., 2018) |
| Number of children in the household | (Acharya et al., 2018)b |
| Number of income sourcesOne, more than one | (Muhihi et al., 2016)c |
| Food sourcesMarket/purchase only, only/partly own production | (Acharya et al., 2018) |
| *Socio-demographics of the mother* |  |
| Age of the mother | (Elshibly & Schmalisch, 2008; Muhihi et al., 2016; Kaur et al., 2019; Chasekwa et al., 2022) |
| Marital status / living situationLiving with partner, living alone | (Kargbo et al., 2021; Ngandu et al., 2021)d |
| Educational levelLow level, elementary level, secondary level | (Elshibly & Schmalisch, 2008; Muhihi et al., 2016; Acharya et al., 2018) |
| OccupationNo occupation, farmer (own farm/farm of someone else), small business, other job, student | (Acharya et al., 2018; Tadese et al., 2021) |
| *Family planning* |  |
| Practice of family planning | (Conde-Agudelo et al., 2006; Bauserman et al., 2020; Kargbo et al., 2021)e |
| *Pregnancy* |  |
| ParityPrimipara, multipara | (Elshibly & Schmalisch, 2008; Muhihi et al., 2016; Kaur et al., 2019) |
| Number of pregnancies | (Elshibly & Schmalisch, 2008; Muhihi et al., 2016; Kaur et al., 2019) |
| Number of live births | (Elshibly & Schmalisch, 2008; Muhihi et al., 2016; Kaur et al., 2019) |
| Birth intervalFirst pregnancy, 9-12 months, 1-2 years, 2-3 years, ≥ 3 years | (Conde-Agudelo et al., 2006; Bauserman et al., 2020; Kargbo et al., 2021) |
| Disease during pregnancyHemorrhage, nausea, hypertension, malaria, any infection, uro-genital infection, risk of abortion, other disease, none | (Deriba & Jemal, 2021; Tadese et al., 2021), (Kargbo et al., 2021)d |
| Medication during pregnancyAntimalarial medication, deworming, antibiotics/antifungal, nausea treatment, pain killer, vaccination, pregnancy-related medication, other medication, none | (Acharya et al., 2018) |
| Use of mosquito net during pregnancy | (Kargbo et al., 2021)f |
| Supplement during pregnancy | (Acharya et al., 2018; Deriba & Jemal, 2021) |
| Food deleted during pregnancy | (Deriba & Jemal, 2021) |
| Food taboo during pregnancy | (Deriba & Jemal, 2021) |
| Interest in diet during pregnancyAnyQuantity, quality, health, weight, infant, delivery, appetite, other interest, no interest | (Deriba & Jemal, 2021) |
| Teacher about nutritionAnyMother, mother-in-law, medical staff, friend, media, other, none | (Deriba & Jemal, 2021) |
| Gestational age at birth | (Villar et al., 2014) |
| *Maternal health* |  |
| MUAC | (Elshibly & Schmalisch, 2008; Muhihi et al., 2016; Kaur et al., 2019; Deriba & Jemal, 2021; Tadese et al., 2021; Chasekwa et al., 2022) |
| Height | (Elshibly & Schmalisch, 2008; Muhihi et al., 2016; Deriba & Jemal, 2021) |
| Sex of the infantMale, female | (Muhihi et al., 2016; Acharya et al., 2018) |
|  |  |

aAssociation only in univariate analysis; association with wasting in children < 5 years.

bGreater family size.

cTrend for association of wealth quintile.

dOnly in univariate analysis.

eAssociations with birth spacing; family planning can contribute to adequate birth spacing.

fAssociation with occurrence of malaria (only in univariate analysis), mosquito nets are a preventive measure.

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