

Table S1 – Definition of variables included in the study

| Outcome / indicator | Question code | Variable code in individual recode dataset | Variable used in analysis |
|---|---------------|--|--|
| Length-of-stay (LoS) after most-recent facility-based livebirth | Q431 | m61_1 | <u>Continuous</u> – converted to hours based on Campbell et al 2016 |
| Early discharge – cut-offs according to WHO and Tanzania Ministry of Health | Q431 | m61_1 | <u>Categorical – 2 categories</u> Coded from continuous LoS variable: 1= Early discharge (Yes) when LoS<24 hours after vaginal birth or LoS<72 hours after caesarean section 0 = Recommended LoS (No) when LoS≥24 hours after vaginal birth or LoS≥72 hours after caesarean section |

| Variable | Question code | Variable code in IR dataset | Variable as used in analysis | DHS 2015-16 | DHS 2022 |
|---|------------------------|-----------------------------|---|-------------|----------|
| Zone | | sreg1 | <u>Categorical – 9 categories</u> Western, Northern, Central, Southern highlands, Southern, South west highlands, Lake, Eastern and Zanzibar | x | x |
| Residence | | v025 | <u>Categorical – 2 categories</u> 0= Rural 1= Urban | x | x |
| Union and cohabiting status (at time of survey) | Q701, Q704, Q703, Q704 | v502 and v504 | <u>Categorical – 2 categories</u> 0= Not in union/not living with partner 1= In union and living with partner | x | x |
| Facility level | Q430 | m15_1 | <u>Categorical – 3 categories</u> 0= Hospital 1= Health centre 2= Dispensary/clinic | x | x |
| Facility ownership | Q430 | m15_1 | <u>Categorical – 2 categories</u> 0= Governmental 1= Non-governmental | x | x |
| Day of birth | Q215 | b17_01, b1_01, b2_01 | <u>Categorical – 2 categories</u> 0= Weekend (Saturday, Sunday) 1= Weekday (Monday-Friday) Days of the week generated from day of birth using 'dow' function in Stata. | x | x |
| Shared bed during stay | Q446A.a | mh18a_1 | <u>Categorical – 2 categories</u> 0 = No 1= Yes | | x |
| Spent time without a mattress on the floor | Q446A.b | mh18b_1 | <u>Categorical – 2 categories</u> 0 = No 1= Yes | | x |
| Was denied care because could not pay | Q446B | mh19_1 | <u>Categorical – 2 categories</u> 0 = No 1= Yes | | x |
| Was delayed in leaving the facility because could not pay | Q446C | mh20_1 | <u>Categorical – 2 categories</u> 0 = No 1= Yes | | x |
| Access to toilet | Q446F-G | mh23_1 & mh24_1 | <u>Categorical – 2 categories</u> 0 = No 1= Yes | | x |
| Maternal age at index childbirth [newborn's date of birth – respondent's date of birth] | | b3_01 – v011 | <u>Categorical – 5 categories</u> 0= <19 years 1= 20-24 years 2= 25-29 years 3= 30-34 years 4= 35+ years | x | x |
| Highest completed education level | Q107-Q108 | v106 | <u>Categorical – 3 categories</u> 1= No formal education 2= Primary education 3= Secondary education or higher | x | x |
| Household wealth index for urban / rural | | v190a | <u>Categorical – 5 categories</u> 0= Poorest ; 1= Poorer 2= Middle ; 3= Richer ; 4= Richest | x | x |
| Parity at index birth | Birth history | b0_01-b0_20 | Categorical – 3 categories – # pregnancies (multiple pregnancies counted as 1) 1= Primiparous 2= Multiparous 2-4 3= Grand multiparous 5+ | x | x |

| Variable | Question code | Variable code in IR dataset | Variable as used in analysis | DHS 2015-16 | DHS 2022 |
|---|----------------|-----------------------------|--|-------------|----------|
| Number of ANC visits during index pregnancy | Q408 Q412 | m14_1 | <u>Categorical – 3 categories</u> 0= None 1= 1-3 visits 2= 4 or more visits | x | x |
| Mode of birth | Q432 | m17_1 | <u>Categorical – 2 categories</u> 0= Vaginal birth 1= Birth by caesarean section | x | x |
| Multiple births | Q214 | b0_01 | <u>Categorical – 2 categories</u> 0= Single birth 1= Multiple birth | x | x |
| Ever had a terminated pregnancy | Q206 / Q230 | v228 | <u>Categorical – 2 categories</u> 0= Never had a terminated pregnancy 1= Ever had a terminated pregnancy | x | x |
| Newborn sex | Q213 | b4_01 | <u>Categorical – 2 categories</u> 0= Boy 1= Girl | x | x |
| Newborn underweight status at birth | Q428 | m19_1 | <u>Categorical – 2 categories</u> 0 = not underweight (weight >=2500g) 1= underweight (weight < 2500) n=247 missing values | x | x |
| Newborn survival and time of death | | b5_01, b6_01, m61_1 | <u>Categorical – 3 categories</u> 0= Survived until survey 1= Died on/before day of discharge 2= Died after discharge Recoded following the guidance in Campbell et al 2016. | x | x |

Table S2 – Characteristics of women (15-49 years) who had their most recent livebirth in a healthcare facility with missing/unknown values for length-of-stay in the three years preceding the DHS survey.

| Characteristics | | 2015-16 (n=3) | 2022 (n=36) |
|---|--|---------------|-------------|
| Socio-demographic and economic factors | Zone | | |
| | Western | 0 | 1 (3.7%) |
| | Northern | 0 | 1 (2.4%) |
| | Central | 0 | 2 (6.4%) |
| | South west highlands | 1 (22.7%) | 10 (16.3%) |
| | Lake | 1 (66.5%) | 19 (51.9%) |
| | Eastern | 0 | 3 (19.2%) |
| | Zanzibar | 1 (10.8%) | 0 |
| | Residence | | |
| | Rural | 3 (100%) | 27 (72%) |
| | Urban | 0 | 9 (28%) |
| Facility characteristics and perception of care quality | Union and cohabiting status at time of survey | | |
| | Not in union/not living with a partner | 1 (66.5%) | 6 (12.9%) |
| | Living with a partner | 2 (33.5%) | 30 (87.1%) |
| | Maternal age at index childbirth | | |
| | 13-19 years | 2 (89.2%) | 4 (7.0%) |
| | 20-24 years | 0 | 11 (28.1%) |
| | 25-29 years | 1 (10.8%) | 9 (24.4%) |
| | 30-34 years | 0 | 6 (24.6%) |
| | 35-49 years | 0 | 6 (15.8%) |
| | Highest completed education level | | |
| | No formal education | 2 (89.2%) | 13 (31.3%) |
| | Primary education | 1 (10.8%) | 15 (42.9%) |
| | Secondary or higher | 0 | 8 (25.8%) |
| Women's needs and obstetric history | Household wealth index | | |
| | Poorest | 0 | 15 (37.8%) |
| | Poorer | 1 (22.7%) | 12 (24.4%) |
| | Middle | 0 | 3 (12.1%) |
| | Richer | 1 (66.5%) | 3 (10.3%) |
| | Richest | 1 (10.8%) | 3 (15.3%) |
| | Facility level | | |
| | Dispensary/clinic | 1 (22.7%) | 17 (41.6%) |
| | Health center | 0 | 11 (29.9%) |
| | Hospital | 2 (77.3%) | 8 (28.5%) |
| Newborn characteristics | Facility ownership | | |
| | Governmental | 3 (100%) | 36 (100%) |
| | Day of birth | | |
| | Weekend | 0 | 12 (33.2%) |
| | Weekday | 3 (100%) | 24 (66.8%) |
| | Shared bed during stay | N/A | 1 (2.4%) |
| | Spent time without a mattress on the floor | N/A | 1 (2.8%) |
| | Was denied care because could not pay | N/A | 0 |
| | Was delayed to leave the facility because could not pay | N/A | 0 |
| | Access to toilet | N/A | 30 (86.9%) |
| Newborn characteristics | Mode of birth | | |
| | Vaginal | 3 (100%) | 33 (91.2%) |
| | Caesarean section | 0 | 3 (8.8%) |
| | Parity at index birth | | |
| | Primiparous | 3 (100%) | 9 (21%) |
| | Multiparous 2-4 | 0 | 17 (49.3%) |
| | Multiparous 5+ | 0 | 10 (29.7%) |
| | Number of ANC visits during index pregnancy | | |
| | None | 0 | 21 (56.3%) |
| | 1-3 visits | 2 (89.2%) | 3 (8.2%) |
| | 4 or more visits | 1 (10.8%) | 12 (35.4%) |
| Newborn characteristics | Multiple birth | 3 (100%) | 0 |
| | Ever had a terminated pregnancy | 2 (33.5%) | 0 |
| | Newborn sex | | |
| | Boy | 3 (100%) | 17 (48.8%) |
| | Girl | 0 | 19 (51.2%) |
| | Newborn underweight status at birth[§] | | |
| | Underweight <2500g | 0 | 1 (3%) |
| | Not underweight ≥2500g | 3 (100%) | 28 (97%) |
| | Newborn survival | | |
| | Survived until survey | 3 (100%) | 36 (100%) |
| Total | | 3 (100%) | 36 (100%) |

[§]n=7 missing values for newborn's weight at birth in 2022

Table S3 - Multivariable logistic regression of factors and early discharge among women who had their most recent birth (vaginal and cesarean section) in a healthcare facility in the three years preceding the DHS 2022, excluding variables with missing values

| | | Vaginal births (n=3,994) | | Cesarean section (n=624) | |
|--|--|--------------------------|---------|--------------------------|---------|
| Characteristics | | aOR (95%CI) | p-value | aOR (95%CI) | p-value |
| Socio-demographic and economic factors | Zone[†] | | | | |
| | Western | 0.6 [0.4;1.0] | 0.065 | 0.8 [0.3;2.6] | 0.749 |
| | Northern | 1.2 [0.8;1.9] | 0.423 | 0.7 [0.3;1.5] | 0.357 |
| | Central | 0.8 [0.5;1.2] | 0.288 | 1.4 [0.6;3.5] | 0.470 |
| | Southern highlands | 0.5 [0.3;0.9] | 0.014 | 0.5 [0.2;1.1] | 0.071 |
| | Southern | 0.9 [0.6;1.6] | 0.825 | 0.8 [0.2;2.5] | 0.667 |
| | South west highlands | 1.9 [1.3;2.9] | 0.002 | 0.8 [0.3;1.8] | 0.568 |
| | Lake | 0.7 [0.5;1.0] | 0.080 | 1.3 [0.5;3.3] | 0.560 |
| | Eastern | ref | | ref | |
| | Zanzibar | 6.4 [4.1;9.9] | <0.001 | 1.6 [0.6;4.5] | 0.330 |
| | Residence | | | | |
| | Rural | ref | | ref | |
| | Urban | 1.0 [0.8;1.3] | 0.934 | 1.6 [1.0;2.6] | 0.070 |
| | Union and cohabiting status at time of survey | | | | |
| | Not in union/not living with a partner | ref | | | |
| | Living with a partner | 1.1 [0.9;1.4] | 0.211 | | |
| | Maternal age at index childbirth | | | | |
| | 13-19 years | 0.9 [0.7;1.4] | 0.770 | | |
| | 20-24 years | ref | | | |
| | 25-29 years | 1.1 [0.8;1.4] | 0.687 | | |
| | 30-34 years | 1.2 [0.9;1.6] | 0.301 | | |
| | 35-49 years | 1.1 [0.8;1.6] | 0.600 | | |
| | Highest completed education level[^] | | | | |
| | No formal education | 1.0 [0.7;1.2] | 0.771 | 0.3 [0.1;0.8] | 0.023 |
| | Primary education | ref | | ref | |
| | Secondary or higher | 0.9 [0.7;1.2] | 0.596 | 1.0 [0.6;1.7] | 0.901 |
| | Household wealth index | | | | |
| | Poorest | 1.0 [0.8;1.4] | 0.846 | 0.4 [0.1;1.2] | 0.114 |
| | Poorer | 0.8 [0.6;1.1] | 0.156 | 1.0 [0.4;2.1] | 0.946 |
| | Middle | ref | | ref | |
| | Richer | 0.9 [0.7;1.2] | 0.406 | 1.3 [0.7;2.6] | 0.389 |
| | Richest | 0.8 [0.6;1.2] | 0.364 | 1.3 [0.6;2.7] | 0.478 |
| Facility characteristics and perception of | Facility level[†] | | | | |
| | Dispensary/clinic | 3.6 [2.6;5.0] | <0.001 | -- | -- |
| | Health center | 1.5 [1.1;2.0] | 0.008 | 3.2 [2.0;5.4] | <0.001 |
| | Hospital | ref | | ref | |
| | Facility Ownership | | | | |
| | Governmental | ref | | ref | |
| | Non-governmental | 0.8 [0.5;1.3] | 0.394 | 0.7 [0.4;1.4] | 0.303 |
| Women's needs and obstetric history | Parity at index birth | | | | |
| | Primiparous | ref | | | |
| | Multiparous 2-4 | 1.0 [0.7;1.3] | 0.769 | | |
| | Multiparous 5+ | 1.1 [0.7;1.5] | 0.706 | | |
| | Number of ANC visits during index pregnancy[†] | | | | |
| | None | 0.7 [0.5;1.0] | 0.041 | | |
| | 1-3 visits | 1.0 [0.8;1.2] | 0.932 | | |
| | 4 or more visits | ref | | | |
| Newborn characteristics | Newborn survival | | | | |
| | Survived until survey | ref | | | |
| | Died on/before discharge | 0.6 [0.2;1.7] | 0.302 | | |
| | Died after discharge | 0.6 [0.3;1.6] | 0.318 | | |

Table S4 – Length of stay and early discharge by mode of birth and survey year

| | | Length-of-stay (hours) | | Early discharge | |
|---------------------|-----------------------------------|-------------------------------|------------|------------------------|--------------|
| | | Median | IQR | n (%) | 95%CI |
| 2015 -16 | Vaginal birth | 16 | [6;36] | 1890 (54.8%) | [52.4; 57.2] |
| | Birth by Caesarean section | 84 | [84;204] | 47 (17.2%) | [11.3; 25.3] |
| | Total | 24 | [8;36] | 1937 (51%) | [48.7; 53.3] |
| 2022 | Vaginal birth | 24 | [12;36] | 1386 (30.3%) | [28.2; 32.5] |
| | Birth by Caesarean section | 84 | [60;108] | 161 (25.2%) | [21.3; 29.5] |
| | Total | 36 | [16;60] | 1547 (29.6%) | [27.7; 31.6] |

Figure S1 - Histograms of length of stay distribution by mode of birth for women who had a livebirth in the three years preceding the survey in Tanzania in 2015-16 and 2022

