

Patterns of maternal and child health services utilization and associated socioeconomic disparities in sub-Saharan Africa.

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Supplementary material

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Supplementary Note 1: Countries included in the analysis

Supplementary Table 1: Countries included in the analysis, the year of DHS survey, corresponding under-five mortality rate, and population estimate.

Country	Year of survey	Number of births included in analysis	Under-five Mortality Rate – U5MR (per 1000 live births) ¹	U5MR Lower bound	U5MR Upper bound	Population size estimate ²
Angola	2016	296	68	61	76	29183070
Burkina Faso	2021	167	48	43	53	21995243
Benin	2018	395	96	90	103	12383348
Burundi	2017	285	78	71	85	11506762
Dem. Rep. Congo	2014	581	104	97	112	78403242
Cote d'Ivoire	2021	256	74	67	82	29639737
Cameroon	2018	297	80	72	87	24806383
Ethiopia	2016	278	67	58	76	106718162
Gabon	2021	133	39	31	48	2376722
Ghana	2022	105	40	35	44	33149152
Gambia	2020	211	56	50	63	2515734
Guinea	2018	334	111	101	122	12704774
Kenya	2022	253	41	37	45	54252461
Liberia	2020	216	93	79	108	5149464
Lesotho	2014	136	85	73	97	2080089
Madagascar	2021	345	75	69	81	29691083
Mali	2018	277	101	92	110	20442030
Mauritania	2021	229	41	36	46	4734875
Malawi	2016	412	64	59	69	17557739
Mozambique	2023	183	60	54	66	33635160
Nigeria	2018	1359	132	124	140	204938755
Rwanda	2020	144	45	40	51	13065837
Sierra Leone	2019	475	122	112	132	7731991
Senegal	2019	117	37	30	44	16352922
Chad	2015	637	133	125	141	14647621
Togo	2014	197	88	79	98	7472451
Tanzania	2022	146	43	38	49	64711821
Uganda	2016	384	64	59	69	38799152
South Africa	2016	88	42	33	51	57259551
Zambia	2018	227	61	54	67	17973569
Zimbabwe	2016	144	69	60	78	14600294

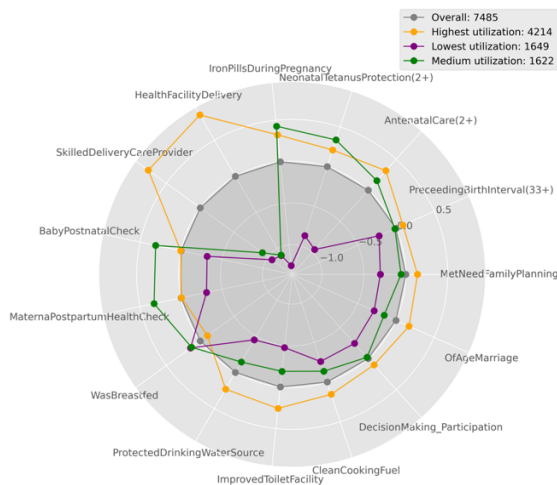
Supplementary Note 2: Description of RMNCH services and protective environmental and cultural practices.

Supplementary Table 2: RMNCH, and protective environmental and cultural

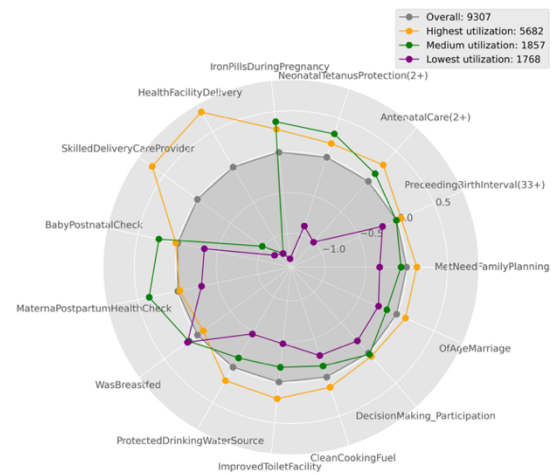
#	Variable	How Defined
1	Clean Fuels for cooking	Primary reliance on clean fuels (electricity, solar power, natural gas, biogas, and alcohol/ethanol) for cooking in a household
2	Improved sanitation facility	Household uses an improved sanitation facility (flush or pour flush toilets to sewer systems, septic tanks or pit latrines, ventilated improved pit latrines, pit latrines with a slab, and composting toilets)
3	Piped water / Protected water source	Household uses an improved drinking water source (piped water into dwelling, yard or plot; public taps or standpipes; boreholes or tube wells; protected dug wells; protected springs, rainwater, packaged or delivered water) which is located on premises, available when needed, and free of faecal and priority chemical contamination.
4	Child spacing (33+ months)	Births whose preceding births interval is at least 33 months
5	Met Need for family planning	Mother of reproductive age (15–49 years) who desire either to have no (additional) children or to postpone the next child and who are currently using a modern contraceptive method.
6	Antenatal care (4+ visits)	Mother aged 15–49 years with a live birth who received antenatal care, four times or more times.
7	Iron pills during pregnancy	Mother who consumed any iron-containing supplementation during the pregnancy.
8	Neonatal tetanus protection (2+ shots)	Mother who received two or more tetanus toxoid injections before birth.
9	Health facility delivery	Whether the birth was in a health facility.
10	Skilled provider delivery	Whether the birth was attended by a skilled health personnel (doctors, nurses or midwives) trained in providing life-saving obstetric care, including giving the necessary supervision, care and advice to women during pregnancy, childbirth and the postpartum period, to conduct deliveries on their own, and to care for newborns.
11	Post-partum visits for women	Whether the mother received postpartum care after childbirth
12	Post-natal visit for babies	Whether the newborn received postnatal care within two months after birth
13	Child was breastfed	Whether the child was breastfed
14	Non-tobacco user	Whether the mother is a non-tobacco user
15	Married at mature age	Whether the mother was 18 years or older at first marriage / consensual union
16	Decision making participation	Whether the mother takes part in making decisions about her health and major household purchases

Supplementary Note 3: Sensitivity Analysis

In the main analysis, mode imputation was applied to address missing values across 14 variables, with missingness percentages ranging from 0% to 7.84%. To assess the robustness of our latent class results to the use of imputed data, we conducted a sensitivity analysis comparing latent classes derived from the primary analysis (including imputed data) against those obtained from a complete-case analysis (excluding imputed cases). Supplementary Figures 1 and 2 below illustrate the latent class outcomes derived from the complete-case analysis and the analysis including imputed data, respectively. Visual comparison of these radar plots shows consistency of latent class assignments, with minimal observable differences across the two methods.



Supplementary Fig. 1: Latent classes with complete case analysis. Source data are provided as a Source Data file.



Supplementary Fig. 2: Latent classes with imputation. Source data are provided as a Source Data file.

References

1. Corsi DJ, Neuman M, Finlay JE, Subramanian S. Demographic and health surveys: a profile. *Int J Epidemiol* [Internet]. 2012 Dec 1 [cited 2024 Jan 19];41(6):1602–13. Available from: <https://doi.org/10.1093/ije/dys184>
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