

Extended Abstract

Maternal Healthcare Service Utilization and Inequalities Post Devolution of Health Services in Kenya: Evidence from 2014 and 2022 Kenya Demographic and Health Surveys.

Background

Equity is at the centre of the Sustainable Development Goals (SDGs) as emphasized under SDG 3 through the overarching goal of ensuring healthy lives and promotion of well-being for all across all ages (Hosseinpoor, Bergen, Schlotheuber & Grove, 2018). According to the World Health Organization (WHO), health equity is the absence of unjust and avoidable differences in health among population groups (Hosseinpoor et al., 2018). Such differences are linked to social, economic, demographic and geographical factors. Concomitantly, health inequalities are the avoidable differences in health among populations that are products of social structures, political, policy and programme processes and decisions (WHO, 2023).

Sub-Saharan region continues to register considerable health gains reflected in improved maternal health and child health outcomes (Abekah-Nkrumah, 2019). However, such gains are unequally distributed both within and across countries. The poor and marginalized, socially excluded or hard to reach groups face the blunt end of such inequality (Pons-Duran, Lucas, Narayan, Dabalen & Menendez, 2019). Maternal health outcome such as maternal mortality ratio, total fertility rate, contraceptive prevalence rate, access and utilization of antenatal care services have improved over time in Kenya. For instance, modern contraceptive prevalence rate among married women of reproductive age 15-49 years (32% in 2003 to 57% in 2022), antenatal visits (had 4+ ANC visits 49% in 2003 to 66% in 2022), deliveries in health facilities (39% in 2003 to 88% in 2022) and assistance during delivery (skilled provider 41% in 2003 to 89% in 2022) have substantially improved in the last two decades.

Monitoring of health inequalities has become critical as countries and other stakeholders work to improve health and its determinants. Existing studies on socioeconomic inequalities in healthcare services have reported existence of inequalities in utilization of healthcare services among those who are more privileged and the less privileged groups (Victoria et al., 2012). A study conducted in Canada depicted disparities in utilization of healthcare utilization where it was predominant among the rich than the poor (Jimenez-Rubio et al., 2008).

Researchers have also pointed out existence of disparities in utilization of maternal healthcare services by residence. A multi-country analysis of inequalities in maternal health care utilization by Nazmul and colleagues (2015) found out that utilization of antenatal care services (ANC), facility-based deliveries and maternal care services in all countries of study were more utilized by pregnant women from urban areas.

To address such inequalities, Kenya implemented health governance reforms such as devolvement of health services as enshrined in the Constitution. The devolved system of governance is envisioned to bring services closer to people and eventually address inequalities often associated with centralized systems (Masaba, Moturi, Taiswa & Mmusi-Phetoe, 2020).

Other measures have been taken to improve maternal and child health outcomes including the Linda mama initiative.

Nevertheless, few studies have been conducted to monitor or track inequality changes in the utilization of maternal health services as a result of such interventions. Existing health inequality studies have focused on cross country with limited attempt to explore inequalities within countries.

This paper contributes to efforts to monitor health inequalities amidst a paucity of inequality analysis efforts in the country. The paper demonstrates the progress made in addressing inequalities in utilization of maternal healthcare services across current top 10 counties with the highest and lowest maternal mortality ratios. The findings highlight potential gaps in addressing inequalities that county governments and non-state actors can address. Improved access and equity in sexual and reproductive health holds great potential to influence development outcomes including realization of the demographic dividend. The evidence is relevant to policy makers and actors interested in addressing health inequalities as a means to accelerate achievement of the SDGs. Therefore, main objective of this study is to assess changes in utilization and inequalities in maternal healthcare services post devolution of health services in Kenya.

Methodology

Data

The paper utilizes data from two rounds of Kenya Demographic and Health Survey conducted in 2014 and 2022 to assess utilization and inequality of maternal health outcome indicators in Kenya. These surveys are cross-sectional, standardized, and nationally representative assessments of household samples, gathering data on a range of health and demographic issues, including maternal and child health, fertility, and family planning (Corsi et al. 2012). This paper analyzes information related to use of maternal healthcare services (use of modern contraceptives among married women, Health facility deliveries, and Skilled delivery assistance). In addition, it will examine two explanatory variables namely place of residence and household wealth index.

Data Analysis

Descriptive analysis is undertaken to assess utilization of the three maternal healthcare outcome indicators across the counties. Changes in utilization overtime is determined using DHS 2014 as the baseline. The three selected maternal healthcare outcome indicators were grouped according to the lower two quintiles (quintile 1 and 2) and top two quintiles (quintile 4 and 5) of the household wealth index to determine the level of inequality in the utilization of the three indicators. The paper uses Erreyger's concentration index as a measure of socio-economic inequality in the use of the three maternal healthcare outcome indicators based on previous studies (Wagstaff, Van Doorslaer, and Watanabe 2003; Wagstaff and Watanabe 2000; Erreygers 2009; Wagstaff 2005). The analysis is conducted using STATA software version 15 and SPSS version 28.

Preliminary Findings

Figure 1 represents top ten out of 47 counties with the highest and lowest maternal mortality ratios as reported in the 2019 population census.

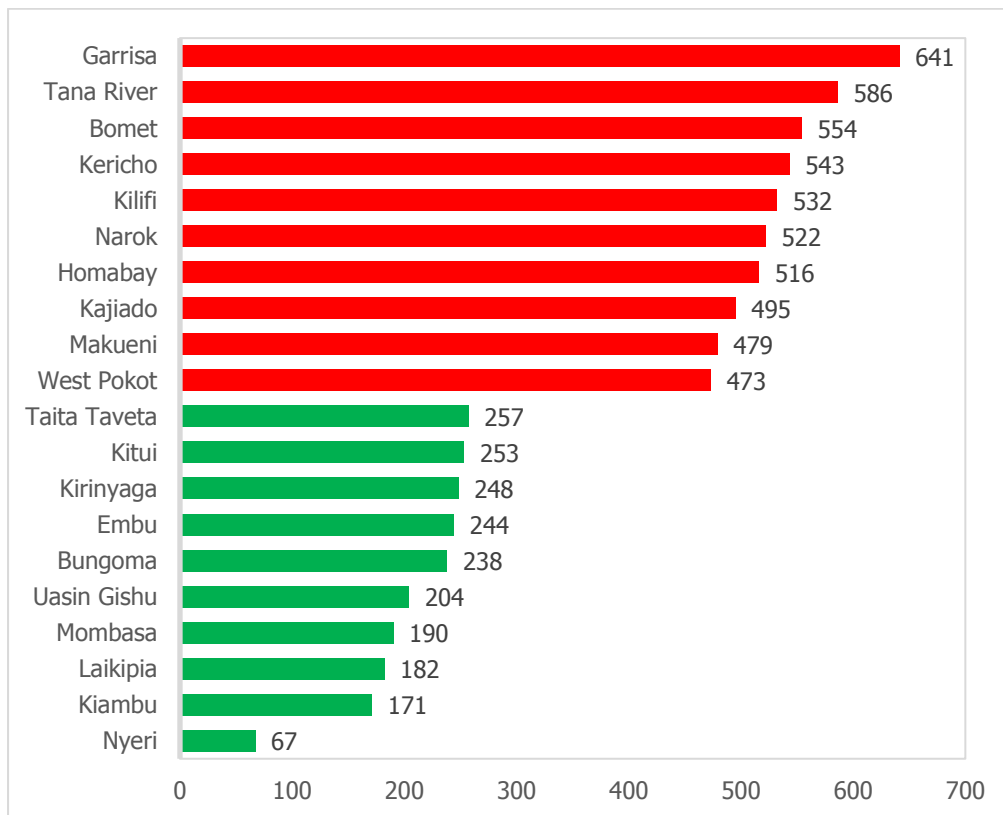


Figure 1: Top ten countries with the highest and lowest MMR in 2019

Trends in the utilization of maternal health between 2014 and 2022 by county

Table 1: Trends in utilization of maternal health services between 2014 and 2022 by County and MMR rank

Counties	Health Facility Delivery			Skilled Delivery Assistance			4+ Antenatal Visits			Modern Contraceptive use		
	2014	2022	% Δ	2014	2022	% Δ	2014	2022	% Δ	2014	2022	%
Top Ten Counties with Lowest MMR												
												Δ
Nyeri	89	99.1	10.1	88.1	99.1	11		82.2		67.1	70.5	3.4
Kiambu	93.4	97.7	4.3	92.6	98.2	5.6		66.8		67.8	68.2	0.4
Laikipia	48.1	90	41.9	49.5	92.6	43.1		65.5		51.3	64.5	13.2
Mombasa	81.8	95.5	13.7	82.8	95.5	12.7		65.3		43.6	42.1	-1.5
Uasin Gishu	57.4	94.3	36.9	59	95.3	36.3		71.9		56	62.7	6.7
Bungoma	40.8	87.6	46.8	41.4	87.2	45.8		72.5		53.9	63.7	9.8
Embu	81.5	95.3	13.8	81.5	96.3	14.8		62		67.2	75.2	8
Kirinyaga	92.5	97.3	4.8	92.3	97.3	5		67.6		75.6	70.8	-4.8
Kitui	45.6	79.5	33.9	46.2	86	39.8		68.2		55.1	62.4	7.3
Taita Taveta	61.9	93.8	31.9	62.5	59.2	-3.3		64.9		61.3	64.5	3.2
Top Ten Counties with Highest MMR												
West Pokot	25.8	59.8	34	27	65.3	38.3		35		13.3	23.2	9.9
Makueni	53.3	90	36.7	54.6	92.1	37.5		75.7		65	64.4	-0.6
Kajiado	62.4	84.6	22.2	63.2	85.3	22.1		81.2		45.2	57.3	12.1
Homabay	61.9	91.5	29.6	60.4	91.2	30.8		68.8		45.5	54.3	8.8
Narok	38.6	69.3	30.7	40.3	70.1	29.8		55.3		38.1	52.2	14.1
Kilifi	52.6	84.5	31.9	52.3	84.5	32.2		77.3		32.8	44.7	11.9
Kericho	62.2	90.9	28.7	64.4	92.3	27.9		58.6		56.9	60	3.1
Bomet	49	86.9	37.9	52.2	88.2	36		53.3		50.4	57.8	7.4
Tana River	31.6	51.6	20	32.2	59.2	27		61.2		20.5	23.2	2.7
Garrisa	36.7	61.4	24.7	39.8	68.1	28.3		31.2		5.5	11.1	5.6

The findings show a general positive change in the utilization of maternal healthcare outcomes between 2014 and 2022. However, a negative change (-3.3) in the proportion of women receiving skilled deliveries in Taita Taveta was noted despite an increase in the proportion of women delivering at a health facility. The use of modern contraceptives remains significantly low in the high MMR counties compared to the low MMR counties with marginal improvements recorded in both. Interestingly, counties such as Mombasa, Kirinyaga and Makueni counties have negative change in the proportion of married women using modern contraception within the period of study. These findings raise concerns on the strategies that counties are putting or should put in place to consolidate and sustain the gains made over the years.

Inequalities in utilization of Maternal health services by county and wealth index

Table 2: Inequalities in utilization of maternal health services and wealth index

County	Modern Contraceptive Use		Skilled Delivery Assistance		Health Facility Delivery	
	Wealth Index		Wealth Index		Wealth Index	
	Lower quintile	Upper Quintile	Lower quintile	Upper Quintile	Lower quintile	Upper Quintile
Mombasa	9.1	76.3	7.1	80.8	7.3	80.3
Kilifi	64.1	24.6	62.3	24.6	63	24.4
Tana River	48	31	67.1	19.4	65.6	19.3
Taita Taveta	35.8	38	37.8	38.6	38.5	38
Garissa	11.6	74.2	24	61.8	18.1	65.6
Embu	28.4	42.5	29.9	40.7	29.3	40.4
Kitui	69.4	17.6	67.5	16.4	66.5	18.6
Makueni	43.7	30.1	37.2	35	35.2	36.1
Nyeri	11.7	68.5	9.7	66.7	9.7	66.7
Kirinyaga	13.8	66	11.3	67.6	10.4	68.8
Kiambu	3.7	83.3	2.7	84.4	2.7	84.8
West Pokot	50.5	27.8	69.8	17.4	67.4	19.1
Uasin Gishu	20.9	53.4	17	60.7	16.7	61.8
Laikipia	25.4	56.9	25.4	58.2	24.1	58.2
Narok	59.7	21.9	54.6	24.6	53.8	24.6
Kajiado	18.6	75.1	19.1	73	19	71.9
Kericho	42.5	26.4	37.6	32.2	36.6	32.3
Bomet	64.3	9.7	62.8	11.2	62.4	11.2
Bungoma	49	28.6	44.5	30.7	45.6	29.1
Homa Bay	56.8	17.3	56	19.2	57.3	18.5

The findings indicate existence of socioeconomic inequalities in utilization of maternal healthcare services as depicted in most of the counties. Counties which exhibited high inequalities in utilization of maternal healthcare services are highlighted in red while those near realization of equity are in blue (see Table 2).

Further concentration index analysis is ongoing to demonstrate where the burden of socioeconomic inequalities lies in the counties. The expected results will show whether devolution of health services has had effect on wealth index and rural-urban inequality differentials on utilization of maternal healthcare services.

Reference

- Abekah-Nkrumah, Gordon. 2019. "Trends in Utilisation and Inequality in the Use of Reproductive Health Services in Sub-Saharan Africa." *BMC Public Health* 19(1): 1541.
- Abekah-Nkrumah, Gordon, and Patience Aseweh Abor. 2016. "Socioeconomic Determinants of Use of Reproductive Health Services in Ghana." *Health Economics Review* 6(1): 9.
- Ahmed, Syed Masud, Max Petzold, Zarina Nahar Kabir, and Göran Tomson. 2006. "Targeted Intervention for the Ultra Poor in Rural Bangladesh: Does It Make Any Difference in Their Health-Seeking Behaviour?" *Social science & medicine* 63(11): 2899–2911.
- Alam N, Hajizadeh M, Dumont A, Fournier P (2015). Inequalities in Maternal Health Care Utilization in Sub-Saharan African Countries: A Multiyear and Multi-Country Analysis. *Plos ONE* 10(4): e0120922.doi:10.1371/journal.phone.0120922
- Assembly, General. 2002. "Resolution Adopted by the General Assembly." *Agenda* 21(7): 11.
- Barros, Aluísio JD, and Cesar G. Victora. 2013. "Measuring Coverage in MNCH: Determining and Interpreting Inequalities in Coverage of Maternal, Newborn, and Child Health Interventions." *PLoS medicine* 10(5): e1001390.
- Boerma, Ties et al. 2018. "Countdown to 2030: Tracking Progress towards Universal Coverage for Reproductive, Maternal, Newborn, and Child Health." *The Lancet* 391(10129): 1538–48.
- Corsi, Daniel J., Melissa Neuman, Jocelyn E. Finlay, and S. V. Subramanian. 2012. "Demographic and Health Surveys: A Profile." *International journal of epidemiology* 41(6): 1602–13.
- Erreygers, Guido. 2009. "Correcting the Concentration Index." *Journal of health economics* 28(2): 504–15.
- Hogan, Daniel R., Gretchen A. Stevens, Ahmad Reza Hosseinpoor, and Ties Boerma. 2018. "Monitoring Universal Health Coverage within the Sustainable Development Goals: Development and Baseline Data for an Index of Essential Health Services." *The Lancet Global Health* 6(2): e152–68.
- Hosseinpoor, Ahmad Reza et al. 2011. "Towards Universal Health Coverage: The Role of within-Country Wealth-Related Inequality in 28 Countries in Sub-Saharan Africa." *Bulletin of the World Health Organization* 89(12): 881–89.
- Hosseinpoor, Ahmad Reza, Jennifer Anne Stewart Williams, Lynn Itani, and Somnath Chatterji. 2012. "Socioeconomic Inequality in Domains of Health: Results from the World Health Surveys." *BMC public health* 12(1): 1–9.
- Marmot, Michael. 2007. "Achieving Health Equity: From Root Causes to Fair Outcomes." *The Lancet* 370(9593): 1153–63.
- Organization, World Health. 2016. *WHO Recommendations on Antenatal Care for a Positive Pregnancy Experience*. World Health Organization.

<https://apps.who.int/iris/bitstream/handle/10665/250796/97892415?sequence=1> (February 6, 2024).

Rutstein, Shea O. 2004. "DHS Comparative Reports No. 6." (*No Title*). <https://cir.nii.ac.jp/crid/1370846644387414551> (February 6, 2024).

Van Doorslaer, Eddy, Cristina Masseria, and Xander Koolman. 2006. "Inequalities in Access to Medical Care by Income in Developed Countries." *Cmaj* 174(2): 177–83.

Wagstaff, Adam. 2005. "The Bounds of the Concentration Index When the Variable of Interest Is Binary, with an Application to Immunization Inequality." *Health Economics* 14(4): 429–32.

Wagstaff, Adam, Eddy Van Doorslaer, and Naoko Watanabe. 2003. "On Decomposing the Causes of Health Sector Inequalities with an Application to Malnutrition Inequalities in Vietnam." *Journal of econometrics* 112(1): 207–23.

Wagstaff, Adam, and Naoko Watanabe. 2000. "Socioeconomic Inequalities in Child Malnutrition in the Developing World." *World Bank Policy Research Working Paper* (2434). https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2894709 (February 6, 2024).

Hosseinpoor, A., Bergen, N., Schlotheuber, A & Grove, J. (2018). Measuring health inequalities in the context of sustainable development goals. *Bulletin of the World Health Organization*.

<https://iris.who.int/bitstream/handle/10665/275087/PMC6154075.pdf?sequence=1>

Ilinca, S., Di Giorgio, L., Salari, P & Chuma, J. (2019). Socio-economic inequality and inequity in use of health care services in Kenya: Evidence from the fourth Kenya household health expenditure and utilization survey. *International Journal for Equity in Health*, 18(196), 1-13.

Abekah-Nkrumah, G. (2019). Trends in utilization and inequality in the use of reproductive health services in Sub-Saharan Africa. *BMC Public Health*, 19 (1541), 1-15.

Pons-Duran, C., Lucas, A., Narayan, A., Dabalen, A., & Menendez, C. (2019). Inequalities in sub-Saharan African women's and girls' health opportunities and outcomes: evidence from the Demographic and Health Surveys. *Journal of Global Health* 9(1), 1-11.

Masaba, B., Moturi, J., Taiswa, J & Mmusi-Phetoe, R. (2020). Devolution of healthcare system in Kenya: Progress and Challenges. *Public Health* 189, 135-140.