

Situation Analysis on the Quality of Maternal and Child Health in Nairobi and Garissa County in Kenya

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Abstract Maternal and Child Health is a Global Health Priority. Interventions to improve and strengthen maternal health outcomes are numerous and seek to scale-up uptake and quality. Quality improvements reflect on three health systems goals: improving maternal and child health service delivery, financial risk protection, and responsive care. Access to quality maternal health care for the public contributes significantly to their well-being by making them a productive part of society. Challenges reported in different studies hindering quality maternal and child services include disrespect and abuse during childbirth, long waiting and travel times, and inadequate resources. Excellence in healthcare service contributes to the reduction of maternal and perinatal mortality, and its incidence may be related to substandard healthcare services and the skills of healthcare providers, yet maternal and child health services are fundamental to population health. **Approach:** Using a mixed-method cross-sectional study design, a structured questionnaire, an observation checklist, and focus group discussions were used to collect data. A purposive sampling technique was used to identify respondents offering and receiving maternal and child healthcare services. Data were managed and analyzed using SPSS version 25. The situation analysis was carried out in Garissa and Nairobi counties with the objectives to identify geographical areas where populations are most in need and with limited/absent access to maternal newborn, and child health care services and understand the main vulnerabilities of Maternal Child Health (MCH). **Results:** The results disclosed that Maternal and Child Health services were available in the geographic areas studies i.e. Garissa and Nairobi Counties, however, it was evident that there was a need to have MCH resources improved for better health outcomes. The main vulnerabilities in MCH included poor access, inadequate availability of maternal medicine, compromised space or room for ANC and neonatal service delivery, inadequate availability of infrastructure and equipment, lack of enough essential medical supplies, and cost of associated maternal and child health services. The quality of MCH services was mostly hindered by both patient and organizational factors for example unable to get to a health amenity in time, and insufficient infrastructure, equipment, and medical supplies. There is a need for stakeholders to invest in strengthening patients' knowledge and , provide adequate medical equipment and supplies as enablers of access and use of MCH services across all levels of care.

Keywords Maternal and Child Health, Quality, Access, Situational analysis, Kenya

1. Introduction

In Kenya, public health amenities struggle to provide basic services owing to human resource challenges, inadequate commodities attributed to poor inventory management and supply chain management practices, poor financing of health systems, weak institutional arrangements, and under developed organizational ethics codes (Waithaka et al., 2020). Agreeing to a World Health Organization

(WHO) report (2018), there has been a 25-year of global decline (44%) of MMR to around 216 deaths per 100,000 live births in 2015 from 385 in 1990. The 2019 Kenya Population and Housing Census Results pointed to slow progress in maternal, neonatal and child health outcomes with a maternal mortality ratio of 355/per 100,000 live births, an infant mortality rate of 35.5/per 1000 live births, and an under 5 mortality rate of 52/1000 live births(KNBS, 2019). The rate of decline is slow such that the attainment of sustainable development goals targets is unlikely (SDG target 3.1 for maternal mortality is 70/100,000 live births and for neonatal mortality (SDG target 3.2) is 12/1000 live births) (World Health Organization, 2015). Empirical studies have confirmed that antenatal care (ANC) visits, institutional

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delivery with skilled birth attendants (SBA), and postnatal care are vital in preventing maternal and newborn deaths (Gülmezoglu et al., 2016).

Inequality in the provision and access to health services for mothers and children is prevalent in Kenya. Geographic accessibility from home to health facilities is considered a major barrier to access to adequate maternal and child health services (Tanou et al., 2021). The negative association between distance or travel time to health facilities and use of health services has been shown to be a significant barrier to access to health services. This is because many life-saving interventions, such as caesarean sections and blood transfusions, are only available at the medical facility to which they are referred (Toukara et al., 2022). This geographical barrier is represented by the second delay in the 3-delays model. (1) Delays in decision making, (2) delays in reaching medical facilities, and (3) delays in adequate care. (Mohammed et al., 2020). Besides, good infrastructure according to (Quattrochi et al., 2020; Sgaier et al., 2015), is essential not just for persons seeking healthcare services but also for easy distribution of medical products and faster referrals in case of emergencies. Inadequate resources have an impetus on facility outcomes such as quality and safety of care delivered. Community-based interventions can significantly reduce neonatal and maternal mortality (Lassi et al., 2010).

Similarly, tracer item availability is low, suggesting the need to expand coverage in primary health care settings to accelerate and achieve reductions in maternal and neonatal mortality and meet SDGs 3.1 and 3.2. In Kenya 50% of facilities offer delivery services with significant gaps in the availability of tracer items for Comprehensive Emergency Obstetric and Newborn Care (CEmONC) and Basic emergency obstetric and newborn care (BEmONC) services. This compromises the availability and quality of a lifesaving service to the mother and baby. The mean availability of tracer items required for a facility to be considered ready to offer CEmONC services is 70% with only 1% of facilities having all the tracer items. Similarly, mean availability of BEmONC is 68% nationally with the availability of all tracer items at 3% (MOH, 2019).

In 2013, Kenya abolished charges in all public maternity wards, promoting eligible birth attendance and aftercare for newborns and children. The introduction of various health payment schemes, such as the National Health Insurance Fund (NHIF), Output-Based Aid, Changamuka, Jamii Bora and Linda Mama. It has made it possible for women to have access to appropriate support during childbirth, minimizing long-standing inequalities between urban, rural and poor people. Linda Mama has been developed, improved accountability, and expanded benefits, but beneficiaries still do not have access to some benefits that were part of the revised benefits package e.g newborn care. Therefore, beneficiaries still had to pay out of pocket, and most county health facilities lost their financial autonomy as they were unable to receive reimbursement from NHIF for services rendered. In addition, disbursement of funds from NHIF may

be delayed or unpredictable. (Orangi et al., 2021).

Furthermore, the inability to quantify and analyze the situation using reliable data plagues Kenya. The health system lacks the ability to measure or understand its own weaknesses and limitations, and policy makers have no science-based idea of what can or should actually be strengthened (Hotchkiss et al., 2010). To facilitate interpretation of national reports and to provide guidance on data use in decision making, (Kihuba et al., 2014) conducted an evaluation of core functions of data generation and reporting within hospitals in Kenya. The study findings indicated that only a few HMIS departments (3/22) had carried out a data quality audit in the 12 months before the survey. Completeness of manual patient registers varied, being 90%, 75.8% and 58% in the maternal-child health clinic, maternity, and pediatric wards, respectively. Vital events notification rates were low with 25.7%, 42.6%, and 71.3% of neonatal deaths, infant deaths, and live births recorded, respectively.

Routine hospital reports suggested slight over-reporting of live births and under-reporting of fresh stillbirths and neonatal deaths. The National Maternal and Perinatal Death Surveillance and Response guideline directs the conduct of Maternal and Perinatal Death Reviews (MPDRs) and near-miss reviews in the community and the health facilities in Kenya. A confidential investigation into the 2017 Maternal Death Report in Kenya found that the majority of audited maternal deaths were poorly recorded and documented. As a result, improving the quality of maternal health requires the use of information technology to facilitate communication and enable faster care and shorter turnaround times. (Delaney, 2018). However, weak ICT infrastructure is evident in low- and middle-income countries. Improving the quality of care for mothers and newborns demands for the health system be prepared in terms of the availability of all resources required (Das et al., 2021; Tunçalp et al., 2015).

These factors are part of the drivers to the slow progression in maternal and child mortality that has seen Kenya ranked among the ten most dangerous countries for a woman to give birth in the world (UNFPA, 2020). Counties in the North-Eastern part of Kenya have the poorest maternal indicators with Garissa recording the highest MMR of 641/per 100,000 live births, an IMR of 42.1, and U5MR of 64.6. Nairobi county is reported to have the highest number of absolute maternal mortalities given its population.

These two counties are part of the 15 high burden counties for maternal mortality in Kenya. There is a need to maintain investments in MCH care in Garissa and Nairobi counties. However, accelerating progress requires robust and sustainable MCH interventions that are readily adaptable and integrate fluidly into the local systems. Transferability of these MCH interventions relies on evidence-based and context-specific evaluations. One critical weakness across the Nairobi and Garissa counties is the current lack of capacity to effectively monitor patterns of service use through time so that the impacts of changes in policy or service delivery can be evaluated. Moreover, there is a dearth

of data on the drivers to poor MCH outcomes in Nairobi and Garissa counties. As such, this situational analysis sought to explore the main vulnerabilities in the two counties, highlighting the ongoing challenges facing their systems and people and to inform and plan interventions that lower maternal, neonatal, and child morbidity and mortality rates.

2. Methods

Study Setting and participants

This cross-sectional study was conducted in Nairobi and Garissa counties in June 2022. The counties were first purposively selected then cluster sampling followed to select the sub-counties with poor MCH indicators and those in informal settlements in Nairobi. The study sites in Nairobi included Ruaraka and Embakasi North sub-Counties while the study sites in Garissa County included Fafi, Lagdera and Balambala. The MCH indicators for the two counties are summarized in Table 1 below. The target population included county health management teams, men, women, healthcare providers, traditional birth attendants (TBA), chiefs, health records information officers, and community health extension workers. The targeted number of health facilities in Nairobi were nine, while those in Garissa were four.

Study Design

This study adopted a mixed method approach. Qualitative responses examined the experiences, voice and agency of the women, men, county health management teams, traditional birth attendants (TBA), chiefs, and community health extension workers. The quantitative data assessed population access to services, human resource availability, MCH service availability, infrastructure and equipment availability,

commodity availability, availability of protocols, guidelines and training materials, and ICT technology. Insights gained from quantitative and qualitative approaches were triangulated to provide an in-depth understanding of the main vulnerabilities in the two counties and the challenges facing their systems.

Data collection tools included open and closed questionnaires, an observation checklist, structured key informant interview guides and focus group discussions. All questionnaires were self-administered. They were dropped and picked at an agreed time with the respondents. On average, observations took a full day, and FGDs took 30–60 minutes.

Data management and analysis

The data collection tools were programmed on the Open Data Kit (ODK) software. Quantitative data was uploaded from the phone/tablet by the research assistants (RAs) at the end of each day and downloaded by the supervisors for screening to check for completeness, identify any gaps/issues with feedback provided to the RAs during debriefing sessions for action to address gaps identified on subsequent days. Quantitative data were analyzed using SPSS version 25.

Descriptive statistics was the principal data analysis technique for quantitative data. For qualitative data, the transcribed texts were transferred to NVIVO 8 qualitative analysis software and analyzed. Following the coding of the transcripts, a full list of themes was categorized within a hierarchical framework of main and sub-themes. The thematic framework was then systematically applied to all the interview transcripts. Patterns and associations of the themes were identified and compared within and between the different groups of respondents to enhance the triangulation of data.

Table 1. MCH indicators 2021

Year (2021)	Nairobi	Garissa
(%) of Deliveries conducted by Skilled Birth Attendants	Ruaraka Sub-County 71.7 Embakasi North Sub-County 49.5	Balambala Sub-County 43.9 Fafi Sub-County 57.2 Lagdera Sub-County 57.6
4th Antenatal Care (ANC) Coverage (%)	Ruaraka Sub-County 78.8 Embakasi North Sub-County 87.7	Balambala Sub-County 44.1 Fafi Sub-County 75.2 Lagdera Sub-County 32
Stillbirth rate (%)	Ruaraka Sub-County 11.5 Embakasi North Sub-County 19.5	Balambala Sub-County 3.2 Fafi Sub-County 19.1 Lagdera Sub-County 4
The proportion of children under one year who are fully immunized (%)	Ruaraka Sub-County 113.4 Embakasi North Sub-County 113.1	Balambala Sub-County 94.2 Fafi Sub-County 91.7 Lagdera Sub-County 60.4
The proportion of Under Five Treated for Diarrhea (Facility) (%)	Ruaraka Sub-County 5.8 Embakasi North Sub-County 10	Balambala Sub-County 10.4 Fafi Sub-County 12.8 Lagdera Sub-County 13.5
The proportion of children under five treated for pneumonia (%)	Ruaraka Sub-County 4.6 Embakasi North Sub-County 5.1	Balambala Sub-County 4.3 Fafi Sub-County 8.5 Lagdera Sub-County 4.9

Source: KHIS 2022

Ethical considerations

Our ethical approach followed Declaration of Helsinki and complied with all its guidelines. After stipulating the objectives, procedures, risks, benefits, confidentiality and voluntary both verbally and literally, the respondents who were willing to participate were asked for a signature on the informed consent form. For those unable to read and write, witnesses their families, relatives or neighbors were asked to sign the form on their behalf. Additionally, for those aged below 18 years, their guardians were asked to accompany, and then sign the informed ascent. Permission was sought from the relevant health facilities management and all stakeholders were also informed about the study.

3. Results

Study participant characteristics

This section gives an in-depth description of the findings of the situational analysis. A total of 391 respondents participated in the study. There was a 100% response rate. See Table 2 below for a breakdown of the total number of respondents from Nairobi and Garissa counties.

Services Availability

The study findings revealed that maternal health services and other sexual and reproductive health care such as family planning, emergency contraception, treatment of sexually transmitted infections, and legal safe abortion services were available as core health services in both Nairobi and Garissa counties. All (100%) of the facilities in Garissa and Nairobi counties provide family planning services while only 22% of these facilities offer safe abortion services. Table 3 below

gives a snapshot of the services offered by county and level of facility.

Table 2. Total Number of participants

Respondents	Garissa	Nairobi
Hospital in-charges and MCH staff	19	13
County management	7	7
Men	33	52
Women	72	116
Chiefs, HRIO and Tools	12	19
TBA	10	2
Participant observation	5	6
Partner mapping	5	13
Total	163	228

Maternal medicine availability

Table 4 illustrates maternal medicine availability for Nairobi and Garissa counties. Oxytocin was readily available in most facilities in both counties. Misoprostol for Postpartum Hemorrhage (PPH) prevention was unavailable for all facilities in Garissa County based on the responses. In Nairobi County, 33.3% of respondents from level 2 facilities and 60% from level 3 facilities agreed to having Misoprostol in their facilities in adequate quantities. Calcium gluconate is inadequate in level 2 and level 3 facilities in Garissa County. In contrast, 50% of respondents agreed that Calcium gluconate was adequate in their facilities. In Nairobi County, 33.3% of respondents from level 2 facilities and 40% from level three facilities agreed that Calcium gluconate was adequate in their facilities. See table 4 below for more details.

Table 3. Service Availability (%)

Service	Garissa			Nairobi		Total
	Level 2	Level 3	Level 4	Level 2	Level 3	
Family Planning	31	16	13	9	31	100
ANC	31	16	13	6	31	97
PNC	31	16	13	6	31	97
Safe abortion services	6	6	9	0	0	22
Post abortion Care	16	6	9	3	16	50
Prevention of Mother to Child Transmission	22	9	13	6	28	78
Immunization	22	16	13	6	31	88
Antiretroviral Therapy	3	6	13	9	13	44
Voluntary Counseling and Testing	22	13	13	9	31	88
Treatment of sexually transmitted infections	19	13	13	9	28	81
Nutrition services and education	31	16	13	6	31	97
Laboratory services	13	16	13	6	31	78
Adolescent and young population services	16	13	13	3	25	69

Table 4. Maternal Medicine Availability (%)

Assessment		Garissa			Nairobi	
		Level 2	Level 3	Level 4	Level 2	Level 3
1. Oxytocin is always available	Agree	20	20	25	33.3	50
	Strongly Agree	40	20	75	0	40
	Neutral	30	0	0	33.3	10
	Disagree	0	40	0	33.3	0
	Strongly Disagree	10	20	0	0	0
2. Misoprostol is always adequate	Agree	0	0	0	33.3	50
	Strongly Agree	0	0	0	0	10
	Neutral	0	0	0	33.3	10
	Disagree	20	20	75	33.3	10
	Strongly Disagree	80	80	25	0	20
3. MgSO4 is readily available when needed	Agree	10	0	25	33.3	30
	Strongly Agree	10	0	0	0	10
	Neutral	0	0	50	33.3	60
	Disagree	20	20	25	33.3	0
	Strongly Disagree	60	80	0	0	0
4. Calcium gluconate is quite adequate in the facility	Agree	0	0	50	33.3	20
	Strongly Agree	10	0	0	0	30
	Neutral	0	0	0	33.3	40
	Disagree	20	40	50	33.3	10
	Strongly Disagree	70	60	0	0	0
5. Normal saline is always available when needed	Agree	20	20	25	66.7	50
	Strongly Agree	40	40	25	0	40
	Neutral	30	20	25	0	10
	Disagree	10	20	25	33.3	0
6. Ringer lactate is always enough for all the clients	Agree	20	0	25	33.3	40
	Strongly Agree	20	20	25	0	40
	Neutral	20	20	50	33.3	10
	Disagree	30	20	0	33.3	10
	Strongly Disagree	10	40	0	0	0

Basic Emergency Obstetric and Neonatal Care (BEMONC) Service Availability

As shown in Table 5 the study revealed that most level four facilities had the seven signal functions for emergency obstetric and neonatal care. Level 2 facilities were observed to have less adequacy basic emergency obstetric and neonatal care availability.

Findings from the FGDs with women revealed that they preferred visiting a trained medic at a health facility because of their expertise, and the ability to detect complications early and provide definitive care.

"I prefer to visit a trained medic at a health facility. It helps avoid risks that come during birth that might lead to the death of the infant. The baby can also get the immunization immediately after birth in a health facility as opposed to when helped by a TBA" -Respondent one

Infrastructure and Equipment Availability

The findings revealed a high availability of essential health infrastructure and equipment in level 4 facilities compared to level 2 and facilities. The surveyed facilities had inadequate access to functional incubators in the neonatal wing of the facilities, resuscitation devices, pharmacy, functional ambulances, a sufficiently equipped theater to handle cesareans operations, an incinerator, proper storage for blood, beds, and room for MCH services at level 2 and 3 facilities in Garissa County. All (100%) level 2 facilities in Nairobi County lacked a functional ambulance and a sufficiently equipped theater to handle cesareans operations. The level three facilities lacked proper storage for blood and the ability to perform a blood transfusion. See table 6 below for more details.

Table 5. Availability of Basic Emergency Obstetric and Neonatal Care Services availability

To what extent do agree that your facility/ has the following products	Facility Level		
1. Parenteral antibiotics are always available	Level 2	Level 3	Level 4
Strongly Agree	7.7%	13.3%	0.0%
Agree	23.1%	40.0%	75.0%
Neutral	30.8%	13.3%	0.0%
Disagree	23.1%	6.7%	25.0%
Strongly Disagree	15.4%	26.7%	0.0%
2. Parenteral oxytocin is always provided in the facility			
Strongly Agree	53.8%	40.0%	50.0%
Agree	15.4%	33.3%	50.0%
Neutral	15.4%	13.3%	0.0%
Disagree	7.7%	13.3%	0.0%
Strongly Disagree	7.7%	0.0%	0.0%
3. Parenteral anticonvulsants are adequate in the facility			
Strongly Agree	7.7%	0.0%	50.0%
Agree	0.0%	26.7%	25.0%
Neutral	7.7%	33.3%	0.0%
Disagree	46.2%	13.3%	25.0%
Strongly Disagree	38.5%	26.7%	0.0%
4. Manual removal of the placenta is always done effectively when required			
Strongly Agree	38.5%	60.0%	0.0%
Agree	23.1%	26.7%	75.0%
Neutral	0.0%	0.0%	25.0%
Disagree	7.7%	6.7%	0.0%
Strongly Disagree	30.8%	6.7%	0.0%
5. Removal of retained products of conception is effectively when required			
Strongly Agree	30.8%	33.3%	50.0%
Agree	15.4%	33.3%	50.0%
Neutral	0.0%	13.3%	0.0%
Disagree	23.1%	6.7%	0.0%
Strongly Disagree	30.8%	13.3%	0.0%
6. Assisted delivery is well done in our facilities			
Strongly Agree	15.4%	13.3%	0.0%
Agree	38.5%	40.0%	75.0%
Neutral	0.0%	20.0%	25.0%
Disagree	15.4%	6.7%	0.0%
Strongly Disagree	30.8%	20.0%	0.0%

Safe and Clean delivery conditions

Clean delivery practices anchored on the “six cleans” (clean hands, clean surface, clean blade, clean cord tie clean towel to wrap baby, and clean cloth for mother) prevent maternal and neonatal infections and should constitute safe and clean delivery practices. The condition of the “six cleans” for safe and clean delivery services by county and sub-County is presented in Table 7 below.

All respondents from Balambala and Fafi in Garissa

County acknowledged that they lacked clean bedsheets, clean clothes/baby towels for wrapping the baby. The situation was however different for Nairobi County. Sterile blades were available in all (100%) facilities in Balambala, Fafi, Lagdera and Embakasi North sub-County. In contrast, only 40% of facilities in the Ruaraka sub-County had sterile blades. While none of the facilities in Balambala and Fafi had a room heater, 50% in Lagdera and Embakasi North sub-County had room heaters. In the Ruaraka sub-county, only 20% of the facilities had heaters.

Table 6. Infrastructure and Equipment Availability (%)

Rate the adequacy of the following infrastructure and equipment available to support MCH services		Garissa			Nairobi	
		Level 2	Level 3	Level 4	Level 2	Level 3
1. There is enough space or room for MCH services (ANC, Delivery, Neonatal)	Agree	20.0	20.0	25.0	0.0	50.0
	Strongly Agree	10.0	20.0	25.0	66.7	20.0
	Neutral	0.0	0.0	25.0	0.0	10.0
	Disagree	20.0	20.0	25.0	33.3	20.0
	Strongly Disagree	50.0	40.0	0.0	0.0	0.0
2. Enough appropriate/standard beds are available in the MCH	Agree	10.0	0.0	0.0	0.0	30.0
	Strongly Agree	10.0	20.0	75.0	66.7	50.0
	Neutral	10.0	0.0	0.0	0.0	0.0
	Disagree	20.0	40.0	25.0	33.3	10.0
	Strongly Disagree	50.0	40.0	0.0	0.0	10.0
3. We have a fully functional ambulance in case of an emergency	Agree	0.0	0.0	0.0	0.0	20.0
	Neutral	0.0	0.0	0.0	0.0	10.0
	Disagree	40.0	0.0	0.0	66.7	20.0
	Strongly Disagree	60.0	100.0	100.0	33.3	50.0
4. We have a sufficiently equipped theater to handle cesareans operations	Disagree	10.0	0.0	25.0	100.0	20.0
	Strongly Disagree	90.0	100.0	75.0	0.0	70.0
	Neutral	0.0	0.0	0.0	0.0	10.0
5. We can perform blood transfusions in our facility	Agree	0.0	0.0	50.0	33.3	0.0
	Strongly Agree	0.0	0.0	50.0	0.0	0.0
	Disagree	10.0	0.0	0.0	66.7	40.0
	Strongly Disagree	90.0	100.0	0.0	0.0	60.0
6. There is a proper storage for blood within the facility	Agree	0.0	0.0	75.0	0.0	0.0
	Disagree	10.0	0.0	25.0	66.7	30.0
	Strongly Disagree	90.0	100.0	0.0	33.3	70.0
7. There is a standard pharmacy within the facility	Agree	0.0	0.0	50.0	66.7	20.0
	Strongly Agree	0.0	0.0	50.0	0.0	20.0
	Neutral	20.0	20.0	0.0	0.0	50.0
	Disagree	40.0	40.0	0.0	33.3	0.0
	Strongly Disagree	40.0	40.0	0.0	0.0	10.0
8. There is a functional incubator in the neonatal wing of the facility	Agree	0.0	0.0	0.0	66.7	10.0
	Strongly Agree	0.0	0.0	0.0	0.0	10.0
	Neutral	0.0	0.0	0.0	0.0	10.0
	Disagree	10.0	20.0	50.0	33.3	30.0
	Strongly Disagree	90.0	80.0	50.0	0.0	40.0
9. There is a standard autoclave/incinerator for hospital wastes management	Agree	0.0	0.0	25.0	33.3	20.0
	Strongly Agree	0.0	0.0	25.0	0.0	10.0
	Neutral	20.0	60.0	25.0	0.0	20.0
	Disagree	20.0	0.0	25.0	66.7	20.0
	Strongly Disagree	60.0	40.0	0.0	0.0	30.0
10. We have enough artificial sources of light in our facility when required	Agree	20.0	0.0	25.0	66.7	50.0
	Strongly Agree	10.0	0.0	50.0	0.0	30.0
	Neutral	10.0	40.0	0.0	0.0	20.0
	Disagree	10.0	40.0	25.0	33.3	0.0
	Strongly Disagree	50.0	20.0	0.0	0.0	0.0
11. The examination couches are well functioning	Agree	10.0	40.0	25.0	33.3	50.0
	Strongly Agree	10.0	0.0	50.0	33.3	30.0

Rate the adequacy of the following infrastructure and equipment available to support MCH services		Garissa			Nairobi	
		Level 2	Level 3	Level 4	Level 2	Level 3
	Neutral	10.0	20.0	0.0	0.0	10.0
	Disagree	30.0	0.0	25.0	33.3	10.0
	Strongly Disagree	40.0	40.0	0.0	0.0	0.0
12. There are adequate and functional resuscitation devices within the facility	Agree	10.0	0.0	25.0	66.7	70.0
	Strongly Agree	0.0	0.0	0.0	0.0	10.0
	Neutral	10.0	0.0	50.0	0.0	10.0
	Disagree	10.0	60.0	25.0	33.3	10.0
	Strongly Disagree	70.0	40.0	0.0	0.0	0.0
13. Syringes are always available and enough	Agree	30.0	20.0	25.0	66.7	30.0
	Strongly Agree	20.0	20.0	25.0	0.0	50.0
	Neutral	30.0	40.0	25.0	33.3	0.0
	Disagree	10.0	20.0	25.0	0.0	10.0
	Strongly Disagree	10.0	0.0	0.0	0.0	10.0
14. The suturing kits are often adequate in our facility	Agree	40.0	40.0	0.0	66.7	70.0
	Strongly Agree	10.0	0.0	25.0	0.0	10.0
	Neutral	10.0	0.0	25.0	0.0	10.0
	Disagree	20.0	40.0	50.0	33.3	10.0
	Strongly Disagree	20.0	20.0	0.0	0.0	0.0

Table 7. Safe and Clean delivery conditions (%)

Safe and Clean delivery conditions		Garissa County			Nairobi County	
		Balambala	Fafi	Lagdera	Embakasi North	Ruaraka
There are clean rooms/surface	Agree	100.0	100.0	0.0	50.0	80.0
	Disagree	0.0	0.0	0.0	0.0	20.0
	Strongly Agree	0.0	0.0	100.0	50.0	0.0
We have clean bedsheets/rubber sheet	Agree	0.0	0.0	50.0	50.0	80.0
	Disagree	100.0	50.0	0.0	0.0	20.0
	Strongly Agree	0.0	0.0	50.0	50.0	0.0
	Strongly Disagree	0.0	50.0	0.0	0.0	0.0
The sterile blades are available	Agree	100.0	100.0	100.0	100.0	40.0
	Neutral	0.0	0.0	0.0	0.0	60.0
Clean cloth/baby towels for wrapping babies are available	Agree	0.0	0.0	50.0	50.0	60.0
	Disagree	100.0	50.0	0.0	50.0	0.0
	Neutral	0.0	0.0	0.0	0.0	20.0
	Strongly Disagree	0.0	50.0	50.0	0.0	20.0
There are room heaters available in the facility	Agree	0.0	0.0	50.0	0.0	20.0
	Disagree	100.0	50.0	0.0	50.0	20.0
	Neutral	0.0	0.0	0.0	0.0	40.0
	Strongly Agree	0.0	0.0	0.0	50.0	0.0
	Strongly Disagree	0.0	50.0	50.0	0.0	20.0
Sterile cord ties are available	Agree	0.0	100.0	50.0	50.0	60.0
	Disagree	100.0	0.0	0.0	50.0	0.0
	Neutral	0.0	0.0	0.0	0.0	40.0
	Strongly Agree	0.0	0.0	50.0	0.0	0.0
Clean water for washing is available	Agree	100.0	50.0	50.0	50.0	60.0
	Disagree	0.0	0.0	0.0	0.0	20.0
	Neutral	0.0	50.0	0.0	0.0	20.0
	Strongly Agree	0.0	0.0	50.0	50.0	0.0

Safe and Clean delivery conditions		Garissa County			Nairobi County	
		Balambala	Fafi	Lagdera	Embakasi North	Ruaraka
Disinfectant or soap is available in the facilities	Agree	100.0	50.0	0.0	100.0	40.0
	Disagree	0.0	0.0	0.0	0.0	20.0
	Neutral	0.0	50.0	0.0	0.0	20.0
	Strongly Agree	0.0	0.0	100.0	0.0	20.0
There are job aids (AMTSL & PPH)	Agree	100.0	100.0	100.0	0.0	60.0
	Disagree	0.0	0.0	0.0	0.0	20.0
	Neutral	0.0	0.0	0.0	50.0	0.0
	Strongly Agree	0.0	0.0	0.0	50.0	0.0
	Strongly Disagree	0.0	0.0	0.0	0.0	20.0
The facility's health workers are easily identifiable and always in uniform/name tags	Agree	100.0	0.0	50.0	50.0	20.0
	Disagree	0.0	50.0	50.0	50.0	40.0
	Neutral	0.0	50.0	0.0	0.0	0.0
	Strongly Agree	0.0	0.0	0.0	0.0	20.0
	Strongly Disagree	0.0	0.0	0.0	0.0	20.0

While all (100%) facilities in Fafi and Lagdera had sterile codes ties available, none in Balambala had sterile codes ties. In Nairobi County, only 60% of facilities in Ruaraka sub-County had sterile codes ties compared to 50% in Embakasi North sub-County. All (100%) facilities in Balambala, Lagdera and Embakasi North sub-County had access to clean water, disinfectant and soap for washing. In Fafi, only 50% of facilities had clean water disinfectant and soap. Again, this was comparable to Ruaraka sub-County where 60% of facilities had clean water and only 40% had disinfectant and soap.

There were job aids (AMTSL & PPH) in all (100%) facilities observed in Balambala, Fafi and Lagdera. However, only 50% of facilities in Embakasi North sub-county and 60% in Ruaraka had job aids. Finally, in Balambala, all (100%) of the facility's health workers were easily identifiable and always in uniform/name tags. While only 50% were easily identifiable in Lagdera and Embakasi North sub-County, only 20% were identifiable in Ruaraka sub-County. No facility staff in Fafi had uniform/name tags. See Table 7 for more details.

Human resource availability

In the health sector, human resources are an essential component of the health system, especially in the provision of basic health services and are identified as one of the six core building blocks of a health system. Health workforce (HCWs) is one of the investment areas as envisioned in the Kenya Health Policy 2014-2030. SDG3 particularly target 3b seeks to increase health financing and support the health workforce in developing countries this calls to substantially increase the recruitment, capacity building, training, and retention of the health workforce. Across the levels of care, most providers indicated to have had training in the last month as shown in Figure 1 below.

Respectful care

The FGDs revealed that some of the providers were

harsh. One respondent went through labour for a long and was mishandled during delivery which led to her child developing Cerebral palsy.

“Some either public or private health centers are not good: health workers are rude, do not respond to patient's needs, some need to be bribed to help deliver” -Respondent one-(Embakasi North Sub-County, Nairobi County).

The women also proposed the introduction adolescent / teenage-friendly MCH services for young mothers.

“The young mothers should not be put together with other old mothers. This will address the stigma of the experience which is a great barrier to accessing MCH services among adolescents” -Respondent one - (Embakasi North Sub-County, Nairobi County).

Distance to the health facilities

The distance from the respondents' homes to the facilities ranged between 800m to 44kms. Findings from FGDs indicated that most women would walk to the facility or ride a donkey those from Garissa, others hired taxis, used of public transport while others reported they used motorbikes to seek services from the facility these were the affordable means to the nearest facility. Some respondents experienced challenges with distance and high transport costs, harsh weather conditions and high levels of insecurity. Lack of transportation was worse at night, when there was trepidation by motorbike riders.

“Security is a challenge, especially at night and people give birth on the way especially when the hospital is far. The motorcycle rider who mostly are men tend to refuse to carry expectant mothers due to the fear that they might give birth on the way” -Respondent one-. (Korogocho, Ruaraka sub-county, Nairobi county)

Social Norm

The majority of the women, visiting levels 2, level 3, and level 4 facilities, disagreed that the local culture is a barrier to accessing services at the health facility those who utilized level 2 facilities agreed that the services offered at the health facility are locally acceptable based on the context.

On the contrary, social norms influenced male involvement in MCH activities. The men indicated during their FGDs that socio-cultural barriers and feminization of MCH activities mainly influenced male participation in MCH services.

“Some cultures make it hard for us to participate in seeking MCH services.” –Respondent three – (Fafi sub-County, Garissa County).

Moreover, men’s economic roles conflict with MCH activities. Some respondents mentioned their prolonged absence from home as a barrier to active participation in MCH matters.

“Most MCH services are attended by women because it is difficult to sit among women in the waiting area in the name of escorting the spouse” –Respondent

four-(Embakasi North Sub-County, Nairobi County).

Affordability of MCH services from the users view

Some of the respondents indicated that the MCH services were either affordable or offered free of charge. A few felt that MCH services were not affordable especially for diagnostic services such as an ultrasound conducted during ANC visits.

“Yes, is affordable in these public health facilities except when one is referred to other hospitals there is an additional cost of transport or for the medicines that are not available.” –Respondent one-(Korogocho, Ruaraka sub-county, Nairobi County)

“The services are not affordable and especially in case an ultrasound is required.” –Respondent two-(Korogocho, Ruaraka sub-county, Nairobi County)

Affordability also influenced the patients’ preferences and choice of health facility. Most of the respondents indicated that they prefer public hospitals because most services are available and free of charge or at low/affordable costs. They are good services offered by qualified medics.

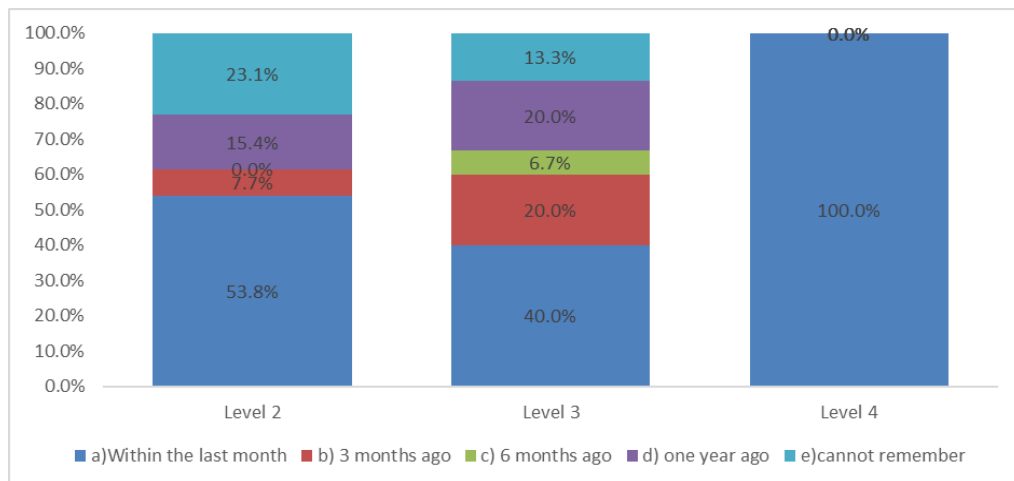


Figure 1. Health worker training in the MCH

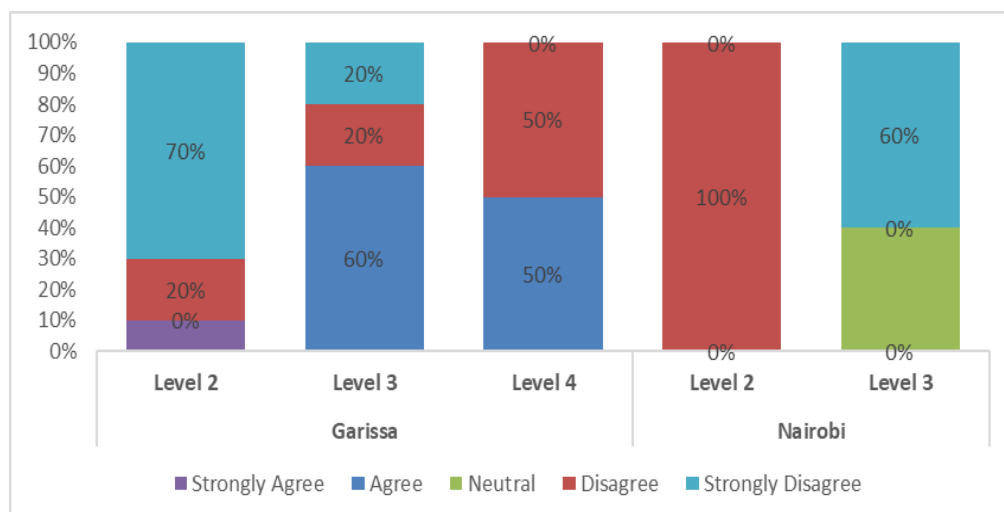


Figure 2. Culture and accessing services

“Many men prefer public health facilities since they are very cheap and affordable and right to the standard.” Respondent one– (Ruaraka Sub-County, Nairobi County).

4. Discussion

Quality of health care is the level to which wellbeing administrations for people/populaces improve the probability of wanted wellbeing outcomes (Nady *et al.*, 2018; Hassan & Farag, 2019; Hassan 2020). The results of this study demonstrate major deficiencies in the quality of MCH services in both counties. While the assessed facilities had the seven signal functions of BEmONC, there is a conspicuous lack of infrastructural prerequisites to function at the very basic level in providing essential routine MCH services and emergency care. This finding is consistent with that of several studies that have cited poor infrastructure as a driver to the poor MCH outcomes (Adam *et al.*, 2005; Gerein *et al.*, 2006; Ukachukwu *et al.*, 2009; World Health Organization, 2005). Inadequate MCH infrastructure constrains the capacity to provide quality MCH services in Nairobi and Garissa counties.

The lack of available theaters for conducting caesarian sections and the lack of resuscitation equipment for newborns, which bestows the ability to handle obstetric complications is the prime concern. Orji *et al.* concluded that the major factor causing delay to treatment is theatre-related (Orji *et al.*, 2006). Another issue is the lack of an ambulance for emergency referrals. The Kenya Health Sector Referral Implementation guideline 2014-2018 provides a rationalized framework for a functional county referral mechanism for patients, specimens, and consultants. Unfortunately, the referral system in the country is a major national problem that needs to be addressed urgently. Delays in receiving appropriate facility-based care (delay three), for women facing pregnancy related complications contribute significantly to maternal mortality. A recent enquiry into maternal deaths in Kenya reported that 46.8 of women who died were referred, and 53.2 of these referrals died at the point of the first admission. Securing referral linkages and health facility readiness for rapid and correct patient management are needed to reduce the impact of these delays within the health system (Chavane *et al.*, 2018). In addition, there is a challenge with the transfusion facilities for both counties as they lack proper storage for blood and cannot perform blood transfusions. This has a particular impact on women with pregnancy and delivery-related complications and with severe life-threatening anaemia.

Equally noteworthy, is the dearth of legitimate safe abortion services in both counties. Unsafe abortion is responsible for the deaths of nearly 2,600 women and girls in Kenya every year, which translates to seven deaths every day (*Report: Lives at Stake as More Kenyan Women and Girls Opt for Unsafe Abortion despite Constitutional Protections* /Center for Reproductive Rights, n.d.). This finding points to

the great inequality in the risk of dying because of an abortion. Women are at an increased risk of acute and chronic abortion complications such as infertility and chronic pelvic pain which can be prevented if every woman has access to legitimate safe abortion when required. The Kenyan High Court ruled that safe abortion care is a fundamental right in a landmark verdict that protects patients and healthcare providers from arbitrary arrests and prosecution (IPPF, 2022). In both counties, oxytocin had a higher availability than misoprostol and calcium gluconate. The availability of misoprostol for safe abortion, PAC, and PPH could avert more maternal deaths than other large-scale interventions in developing countries (Prata *et al.*, 2009).

The study findings also reveal that practices do not always reflect adequate implementation of clean delivery practices. Both counties lack clean bedsheets, towels, and sterile code ties. These findings mirror results published by (Moyer *et al.*, 2012) who reported that many recommended clean delivery practices were ignored in Ghana. The results provide an important backdrop against which future interventions can be planned to improve the way infants are handled upon delivery to reduce infections. In addition, there is evidence of disrespect and abuse especially among young mothers. The finding was in line with that of (Bohren *et al.*, 2015) who reported that many women experience disrespect and abuse during childbirth. Disrespect and abuse must, however, be addressed by centering women's perceptions and needs, both from a human rights perspective and because negative childbirth experiences reduce utilization of health services.

Social norms also exacerbate systematic and long-standing inequities in the MCH service utilization, especially in Garissa County. While male involvement in MCH programs has been associated with positive reproductive health outcomes globally (Bawah, 2002) (Terefe & Larson, 1993), few men participate in MCH services. FGDs with the men revealed that they have adequate knowledge of the type of support they ought to give to their partners during pregnancy though they still find their participation to be unnecessary. Thoughtful restructuring of MCH programs to increasingly engage men could strengthen male involvement. Also, an understanding of the dynamics of male influence is therefore crucial in negotiating compromises to improve their involvement in MCH programs (Aborigo *et al.*, 2018).

Access to MCH services is also constrained by security concerns especially at night. This may cause travel fares to be significantly higher at night making it harder for women who already found day fare rates as prohibitive to access facilities. Pregnant women are then faced with conundrums on “when”, “where” and “how” to reach hospitals when in an emergency. While the decision-making is a shared activity, the available options vary depending on their socioeconomic status (Banke-Thomas, n.d.). The net result of this is prolonged delays, with many women left alone to find their way or seek the services of a traditional birth attendant which may reverse gains made in improving maternal and neonatal survival. This calls for efforts to be put in place to improve

the travel experiences of women through significant road-infrastructure improvements, establishing partnerships with specific taxi companies and behavior change of drivers.

A key limitation in this study was selection bias and generalizability. We used a purposive sample from facilities in Nairobi and Garissa Counties. The findings may, therefore, not be representative in the other areas of the country. Nonetheless, this is one of the most comprehensive studies on MCH service delivery involving both clinical and non-clinical providers in different levels of health facilities.

5. Conclusions

All the facilities visited in Nairobi and Garissa counties have quite a good coverage on MCH services and the population can access to maternal, newborn, and child health services easily. This is an indication that efforts towards scaling up the uptake of MCH services in Kenya are reaping good results. However, the delivery of quality maternal healthcare services was found to likely be impeded by inadequate availability of maternal medicine, compromised space or room for ANC and Neonatal service delivery, inadequate availability of infrastructure and equipment, lack of enough essential medical supplies and cost of associated with maternal and child health services. In the facilities visited in Nairobi and Garissa Counties, there were no sufficiently equipped theaters to handle operations, nor do they have the capacity to conduct any blood transfusion services when they need to. There is a dire need to fulfil the infrastructural, social and logistical challenges in health facilities for increased access, utilization and better MCH outcomes.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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