Healthcare Accessibility Analysis In Nairobi

October 20, 2024

Overview

Background

- This project aims to analyze healthcare accessibility in Nairobi, Kenya's capital and largest city. As Nairobi experiences rapid urbanization and population growth, ensuring equitable access to healthcare has become a critical challenge. This analysis focuses on understanding the distribution of healthcare resources in relation to population needs and demographics across the city's sub-counties.

Hypothesis

- “The distribution of healthcare resources in Nairobi are misaligned with population needs, potentially hindering progress towards Universal Health Coverage as outlined in SDG 3."

Objectives

- Analyze the distribution and capacity of healthcare facilities relative to population across Nairobi sub-counties
- Identify any disparities in healthcare accessibility among different demographic groups
- Assess the operational status of healthcare facilities to identify system-wide improvements
- Develop targeted recommendations to improve healthcare accessibility and system efficiency in Nairobi

Analysis Approach

Data Sources

1. Health Facilities Dataset (Open Africa, Nov 2023)
2. 2019 Kenya Population and Housing Census
    - Population distribution by age, sex, and sub-county
    - Population density by sub-county

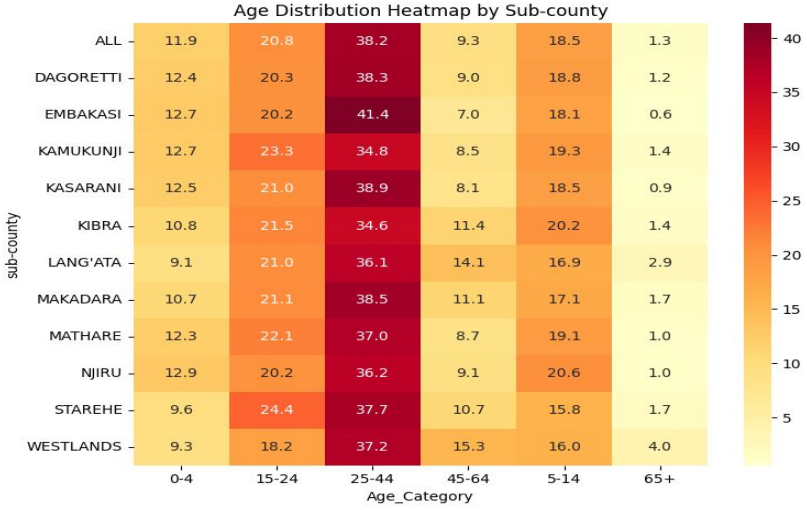
Analysis Steps

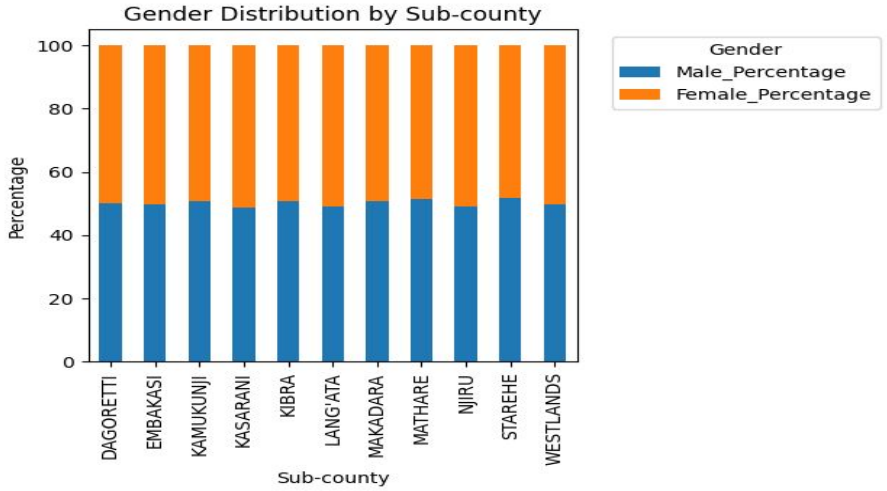
1. Data Preparation
    - Data cleaning and standardization
    - Integration of datasets at sub-county level
2. Demographic Analysis
    - Population distribution across sub-counties
    - Age and gender composition analysis
3. Healthcare Facility Analysis
    - Facility distribution, owner, and type analysis
    - Calculation of healthcare facilities per capita
    - Bed and cot capacity assessment
    - Analysis of capacity relative to population density
4. Operational status evaluation

Key Demographic Findings

Age Distribution

- Fairly consistent across sub-counties
- Highest proportion: 25-44 age group
- Westlands: Higher elderly population (65+)
- Embakasi & Kamukunji: Slightly higher young children (0-4)





Gender Distribution

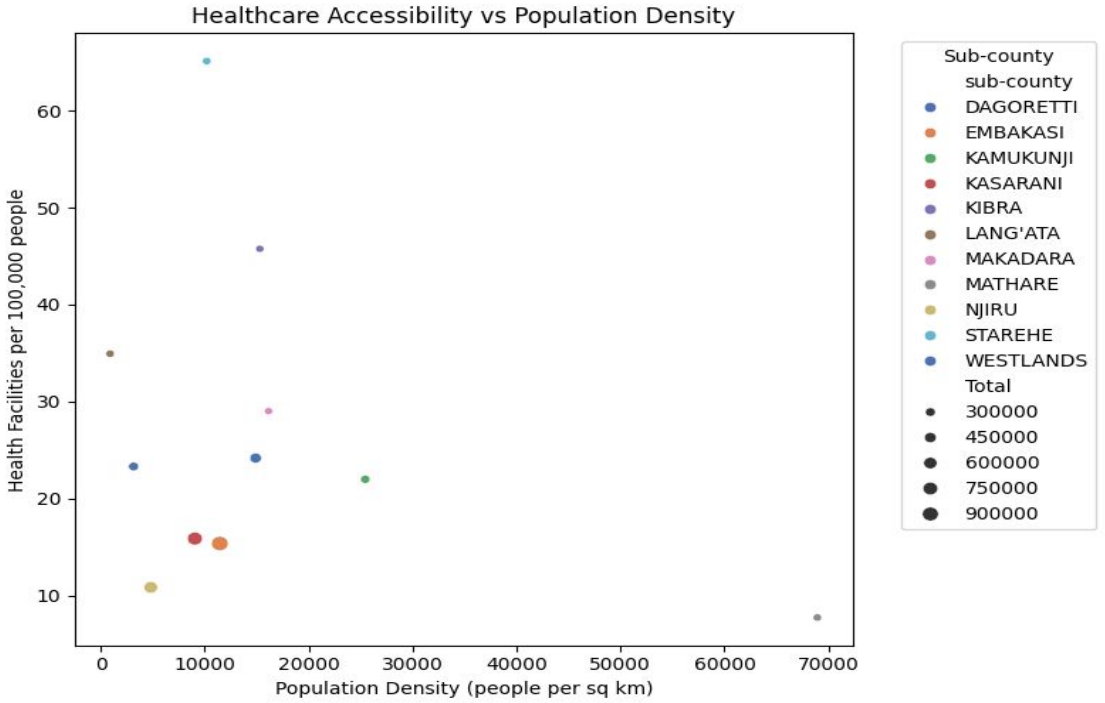
- Fairly balanced across sub-counties
- Slight male predominance in most areas

Healthcare Facility Distribution

Healthcare facility distribution across Nairobi sub-counties reveals significant disparities.

Starehe boasts exceptionally high accessibility, while Mathare shows very low facility density despite its high population density.

Generally, larger sub-counties tend to have lower healthcare accessibility, suggesting a mismatch between population size and healthcare infrastructure.



Sub-County	Beds per 1000	Cots per 1000
Embakasi	0.79	0.16
Kasarani	0.24	0.04
Njiru	0.34	0.04
Dagoretti	1.44	0.26
Westlands	2.04	0.10
Kamukunji	4.04	0.77
Starehe	1.70	0.28
Mathare	3.53	0.00
Lang’ata	3.78	0.00
Makadara	1.03	0.10
Kibra	9.60	2.37

Capacity Analysis

The data shows disparities in the availability of medical beds and cots across Nairobi sub-counties, with several areas falling short of the **WHO’s recommended standard of 5 beds per 1000 people**.

- Kibra leads with **9.6 beds** and **2.37 medical cots per 1000 people**, exceeding the WHO recommendation.
- Kasarani, Njiru, and Embakasi have fewer than **1 bed per 1000 people**, significantly below the WHO standard.
- Mathare and Lang'ata have no medical cots, which may limit emergency and temporary care capacity.
- Dagoretti, Starehe, and Westlands have mid-range bed capacity but still fall short of the WHO recommendation.

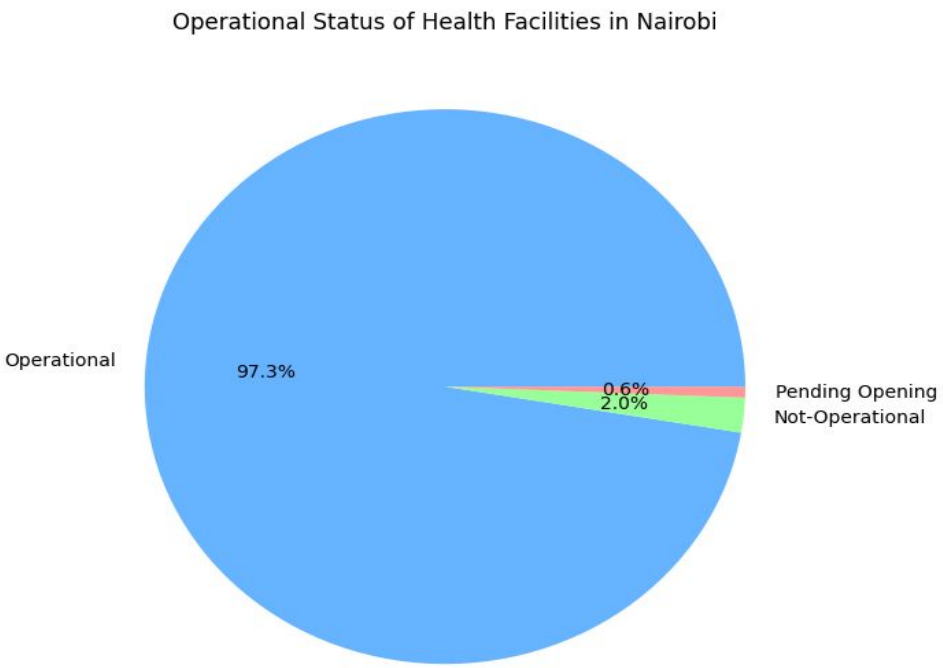
Operational Status Evaluation

The vast majority of health facilities (97.3%) in Nairobi are operational, indicating a generally active healthcare system.

A small proportion (2.0%) of facilities are not operational, which may impact healthcare accessibility in certain areas.

A few facilities (0.6%) are pending opening, suggesting ongoing efforts to expand healthcare infrastructure.

Of the non-operational facilities, 7 are in Kasarani, 7 in Embakasi, 2 in Makadara, 2 in Kibra, 1 in Njiru, and 1 in Lang'ata. This distribution highlights that Kasarani and Embakasi, which are among the sub-counties with lower healthcare accessibility, also have the highest number of non-operational facilities, exacerbating the healthcare access challenges in these areas.



Recommendations

Based on this analysis of healthcare accessibility in Nairobi, we propose the following recommendations for the Nairobi City County Government to address disparities and improve healthcare access:

- **Targeted Facility Expansion in Mathare:** Prioritize establishment of new healthcare facilities in this sub-county and aim to significantly increase facility density.
- **Mobile Health Services:** Implement mobile health clinics in larger sub-counties with lower accessibility i.e Embakasi and Kasarani to bridge the gap between population size and available healthcare infrastructure. These mobile units can provide essential primary care services and health screenings.
- **Bed Capacity Expansion in Kasarani and Njiru:** Prioritize increasing bed capacity in these critically underserved areas. Aim to significantly improve the beds-to-population ratio over the next 5 years. Set incremental targets to move towards the WHO recommendation of 5 beds per 1,000 people
- **Emergency Care Enhancement:** Increase medical cot capacity in Mathare and Lang'ata by adding 50 medical cots each over the next 2 years, distributed across existing facilities to improve emergency and temporary care capabilities.

Recommendations (continued)

- **Reactivation Strategy:** Develop a targeted plan to reactivate the 2% of non-operational facilities. This could involve assessing the reasons for closure, such as resource constraints or management issues, and addressing them systematically. Prioritize reactivation of those in Kasarani and Embakasi with lower healthcare accessibility and higher population to maximize impact.
- **Accelerated Facility Opening:** Implement an expedited process for opening the pending facilities. This should include streamlining bureaucratic procedures, ensuring adequate staffing, and providing necessary equipment.
- **Public-Private Partnerships:** Collaborate with private healthcare providers, given that they own most of the facilities in the city, to establish new and enhance existing facilities in aforementioned underserved areas, offering incentives for opening clinics in sub-counties with low accessibility and capacity scores.