

Urban Governance, Territorial Distributive Justice and the Political Ecology of Malaria

Prevalence in Nigeria

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Abstract

This study investigates the spatial prevalence of disease in urban Nigeria as a reflection of the population's residential habitat quality and the distributional pattern of healthcare resources in the study area. Both factors are conceptualized as being products of urban governance and corollaries of territorial distributive justice. Secondary data on clinically-diagnosed cases of malaria, population, and the location of healthcare facilities in the study area were subjected to various statistical and descriptive analyses. The results show a bias in the distribution of the facilities against high density residential neighborhoods populated mostly by the less affluent and an inverse relationship between the availability of health facilities and disease prevalence. The relationship was however not statistically significant. Conscious urban planning efforts, rather than politics and economic considerations, are suggested to address the inequalities in environmental quality and the distribution of healthcare facilities as both were found to influence health outcomes in the study area.

Introduction

That health matters for development is a fact that has been long recognized (WHO, 2016; UN, 2012; Bloom and Canning, 2008; IMF, 2004; Sachs and Malaney, 2002), yet health is not uniform in space. And so is development. The variation in health may present as differences in the incidence of diseases in space and in health outcomes among a population. It may also be in the distribution of and access to healthcare facilities in space. While biology and exposure to elements in the natural environment account largely for the former, the latter is consequent on the social interactions in space. Such interactions are underlined by political and economic considerations, are responsible for determining the distribution of resources among the population, and are responsible for the creation of a social environment that influences health (Swyngedouw and Kaika, 2014; King, 2010; McLafferty, 2010; McLaughlin and Dietz, 2008; Swyngedouw and Heynen, 2003; Mayer, 1996).

When situated within an urban space, these political and economic considerations create power relationships that define who has access to and controls available natural and physical resources within the city, and have implications for health governance, healthcare resources allocation, health services delivery, and health outcomes (Mackenbach, 2013; 2014; Chen and Cammett, 2012; Beckfield and Krieger, 2009; Navarro et al, 2006). The power relations also foster a differential spatial structure among the residential neighborhoods in a city through the ways urban services infrastructures are provided and in the disparity in the quality of the living environment (Swyngedouw and Kaika, 2014; Loftus, 2012; Heynen, Kaika and Swyngedouw, 2005; Keil, 2003; Brechin, 2001; Lipton, 1998; Smith, 1987; Knox, 1978; Harvey, 1973). This study argues that the bias in the allocation of urban infrastructures in Nigeria in favor of certain localities and residential neighborhoods is consequent on the power relations in the urban

centers, creates health vulnerabilities in the other parts of the city, and reflects in the spatial disparity in health outcomes of the urban population.

Methodology

The study employed a multi-stage sampling technique. Ibadan, the capital of Southwest Nigeria, was purposively selected as the study location for several reasons. Secondary data types were used in the study. The number and distribution of hospitals in the selected localities were extracted from the records of the Oyo State Ministry of Health (OYMOH). Data on clinically-diagnosed cases of malaria were also obtained from the same source. The number of cases for each of the study locality was computed from the records of all health facilities available in each of the study localities as detailed in the District Health Information Software (DHIS) of the Department of Planning, Research and Statistics of the Oyo State Ministry of Health (OYMOH), Nigeria. Population data employed in the study was sourced from the records of the National Population Commission and projected as appropriate.

The number of clinically-diagnosed cases of malaria computed for each of the study localities was analyzed for spatial variations using both the ANOVA and Case Comparison methods. Ratio of Access, Coefficient of Advantage and Gini Coefficients were employed to assess the level of equity in the distribution of the healthcare facilities relative to the population served while the Pearson Product Moment Correlation (PPMC) and Spearman Rank Correlation techniques were used to examine the relationship between the distribution of healthcare resources and prevalence of malaria in the localities.

Results

For the period reviewed, there were 82,547 clinically diagnosed cases of malaria in the 15 localities of study. When the distribution is disaggregated along residential density lines, the proportional shares of the incidence of malaria were between 0.98% and 2.96% in four of the five low density residential localities. The only exception was Agodi with 12.89%. The shares also ranged between 4.14% and 11.30% in the medium density neighborhoods while in the high density neighborhoods, the distribution was between 4.40% and 8.66%. A further analysis of the distribution shows that jointly, the localities from Ibadan North-East LGA accounted for 25.33% of the total distribution. Localities from Ibadan South-East LGA also jointly accounted for 20.90% of the malaria cases while the localities from Ibadan South-West LGA contributed 19.84% of the total number of cases. Localities in Ibadan North-West and Ibadan North accounted for 19.69% and 14.25% of the cases respectively. The statistical analysis of variance of the distribution indicated that indeed variations existed in the number of cases among the study localities but the variations were statistically insignificant ($F = 0.935$, $P = 0.548$). The correlation analysis also showed that there was a positive correlation between residential density and the incidence of malaria ($r = 0.400$, $P = 0.140$). The correlation was however not statistically significant.

There were 75 hospitals in the 15 localities. This number comprised 49 private hospitals and 26 government hospitals. The medium density residential areas had 41% of all the hospitals as well as 42% of the public hospitals. The high density neighborhoods had 30% of the total distribution and 31% of the public facilities. The total number of public hospitals was least in the low density neighborhoods. The level of equity in the distribution was further analyzed using population as the equity stratifier. Population is a distributive factor in Nigeria (Okafor, 1989;

Nigeria, 1999). The distribution of the health facilities relative to the population sizes of the localities showed that access to hospitals was best in Basorun where there was at least a hospital to about 700 people. Basorun was followed closely by Oluyole Estate with about 1,000 people being served by a hospital. Other localities where the number of population to a hospital was less than 2,000 were Agodi (1,280), Old-Ife Road (1,700), Idi-Isin (1,199), Eleyele (1,895) and Molete (1,323). In the other localities there were more than 2,000 people to a hospital. Access was lowest however in Foko with one hospital to 6,277 people. When the analysis of access was aggregated along residential density lines, the medium density neighborhoods had the highest access rate of one hospital to 1,656 people. In the high density areas, the ratio was one hospital to 3,604 people. The equity analysis also showed that four of the five medium density neighborhoods had more than their fair share of the distribution as evident by a Coefficient of Advantage greater than 1.00 while only two of the low density localities had less than their fair share. All the high density localities had less than their fair share of the distribution.

The absolute numbers of the facilities in the localities and a ranking of the performance of the localities on the access and equity measures were employed as the independent variables in a correlation analysis with the number of malaria cases in the localities. The result of the correlation analysis ($r = -0.405$, $P = 0.134$) indicated an inverse relationship between the incidence of malaria and the distribution of health facilities in the study area. The relationship was however not statistically significant.