



Assessing the Influence of Road Infrastructure on Access to Health Facilities in Ado Ekiti

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Abstract

Lack of economic and social facilities, especially health and education, is costly. Healthcare access is crucial to public health, and road infrastructure quality affects it. In Ado Ekiti, Nigeria, where healthcare disparities and challenges are prevalent, road infrastructure affects health facility access. Health facilities are closely linked to road infrastructure, so improving road conditions can reduce transportation costs and wait times, encouraging use. This study examines road infrastructure and health facility patronage in Ado Ekiti to understand healthcare access in the region better. A systematic multistage sample technique surveys 400 people from 25 Ado Ekiti villages, categorised by population size. Residents in densely populated, medium-populated, and rural areas receive questionnaires. Statistics are done with SPSS 23. Road infrastructure quality is strongly correlated with health facility use. High transportation costs, long vehicle wait times, and road conditions affect respondents' healthcare centre transportation choices. The findings show that improving road infrastructure can lower transportation costs, shorten wait times, and boost health facility use. This study shows that road infrastructure is crucial to healthcare access, especially in rural areas, and that road improvement projects can improve public health. It helps address healthcare disparities and challenges in Ado Ekiti, Nigeria and improves healthcare access in similar regions.

Keywords: Infrastructure, public health, health facility, healthcare, transportation.

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Introduction

There is a high economic price to be paid for insufficient access to economic and social facilities, particularly regarding health and education. The principal asset of poor people is their labour, either for subsistence or wage employment. Poor people are often ill and less likely to have savings to support them during ill health. Although for many of the world's poor rural populations, mobility is a key to accessing

and being accessed by biomedical health services and technologies; this issue has received scant research attention. However, the crucial role of appropriate, affordable and timely transport in accessing health care is increasingly being raised by significant development organisations and initiatives for constructing feeder roads providing motorised vehicles.

Road provision enabled the equipping and supply of health outlets. It is also apparent that while some women's travel time to health facilities was reduced in some locations, women in other areas continue to contend with a full day's journey to their nearest health centre (Adebayo et al., 2017). If poverty is to be reduced and productivity increased, then labour must be promoted, and this can be done principally by increasing access to health and educational facilities.

The availability and quality of road infrastructure, among other things, affects people's ability to get medical care when needed. Their access to healthcare facilities dramatically impacts the health and well-being of individuals promptly and efficiently. The impact of roads on people's ability to reach medical care is crucial in the context of Ado Ekiti, Nigeria. Access to healthcare facilities is a critical determinant of health outcomes. It encompasses the ability of individuals to reach health services when needed, which includes primary care, emergency services, and specialised treatment. Adequate access to healthcare is essential for preventing and managing diseases, reducing mortality rates, and improving overall quality of life. In the context of Ado Ekiti, where healthcare disparities and challenges exist, the influence of road infrastructure on access to health facilities is of particular concern.

Several studies have shown that transportation-related issues, including the quality of road infrastructure, can be a significant barrier to healthcare access. Poor road conditions, inadequate public transportation, and limited vehicle access can hinder individuals from seeking medical care promptly. In many developing regions, rural areas often face more significant challenges in accessing healthcare due to the limited availability and quality of road infrastructure. This is particularly relevant to Ado Ekiti, where urban-rural disparities in healthcare access are prominent. The condition of road infrastructure has a direct impact on maternal and child health. Pregnant women may face difficulties reaching healthcare facilities for antenatal care, and timely access to obstetric services during emergencies is crucial for reducing maternal mortality.

The location of health facilities is closely tied to road infrastructure. Establishing healthcare centres in areas with better road access can enhance healthcare access for the population. Poor road conditions can lead to increased transportation costs for individuals seeking healthcare. The financial burden of accessing healthcare can be a significant deterrent, especially for low-income populations. The improvement of rural transportation is still a pressing issue in Nigeria. For instance, due to increased vehicle operating costs and travel times, agriculture and other rural sectors have paid a heavy price for the nation's poor road infrastructure (Akintola, 2007). The Federal Government of Nigeria (FGN) has attempted multiple initiatives to serve the country's growing rural population better, but none have succeeded. Ume and Nwachukwu (2011) identified that many rural areas where goods are produced are not effectively linked to urban areas by good motorable roads because the role played by road transport has not been adequately considered and addressed. This research work thus assesses the influence of road infrastructure on access to health facilities in Ado Ekiti.

Study Area

Ado Ekiti, the capital city of Ekiti State in southwestern Nigeria, is one of the major cities in the state and serves as its administrative and cultural centre. Ekiti State is known for its educational institutions, and Ado Ekiti is home to Ekiti State University, one of the state's prominent universities. Ado Ekiti has modern amenities and a more traditional Nigerian atmosphere. The city has various markets, government offices, educational institutions, and healthcare facilities. It is also known for its natural beauty, as it is situated in a region with lush vegetation and hilly terrain. The city has a rich cultural heritage; various cultural events and festivals occur annually. Yoruba culture is prevalent in the region, and you can experience traditional music, dance, and art in Ado Ekiti. Ado Ekiti has various health facilities, which ranges from multisystem hospital, University teaching hospital, general hospitals, health centres and a host of private hospitals. Ado-Ekiti region, by its location, becomes a focus of

the transport network for the requirements of inter and intra-regional movements. The only link between this region is through road transport. Because of this region's economic and social activities, its traffic generation attrition and flow pattern have been influenced. In other words, the traffic volume on these roads is a function of the total regional population, population distribution within and outside the region, employment centres and the pattern of socio-economic activities. The roads in this region are essential for intra-regional movements as they connect market men and

women, farmers, rural health workers, artisans, students and civil servants to their destinations. The Ado-Ekiti region's development spread towards communication routes; in other words, the settlement's growth and evolutionary structure are replicas of Homer Hoyt's sector theory of 1939, which posited the spread of physical development in the direction of transportation routes. The road network radiates from the centre in different directions, linking other towns and villages in the study area like Iyin Ekiti, Igede-Ekiti, Awo Ekiti, Eyio Ekiti, Iropora Ekiti as well as Iworoko Ekiti, Are Ekiti, Afao Ekiti and Igbemo Ekiti

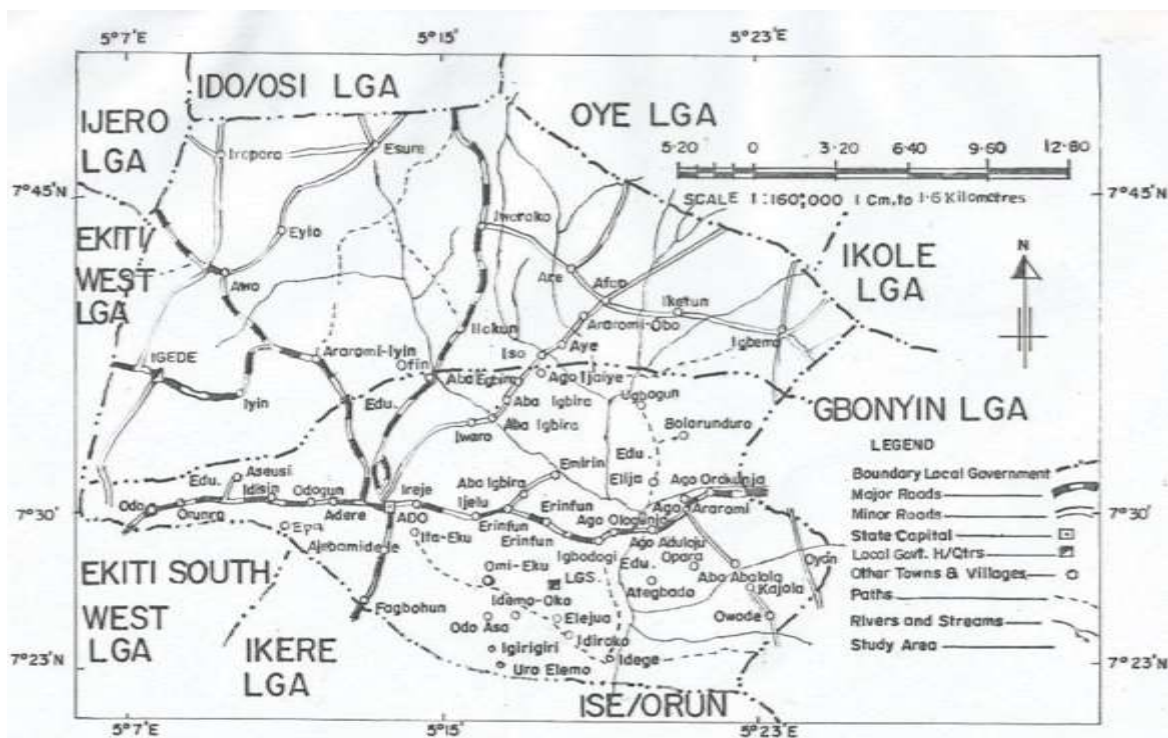


Fig 1: Map of Road Networks in Ado – Ekiti region
Source: Cartographic Unit GPS (EKSU)

Methods

Four hundred people were surveyed from twenty-five villages using a systematic multistage sample technique. Twenty-five villages were selected in the first phase because of their proximity to medical facilities. The second step was classifying these 25 places into either "big," "mid," or "low" in terms of population. Igede, Iyin, Iworoko, and Igbemo were among the populous towns, while Awo,

Eyio, Iropora, Esure, Are, Afao, Odo-uro, and Igirigiri were among the medium-population ones. The villages with few residents were named Aroto, Igimokogo, Idege, Ita-Eku, Elemi, Iketun, Ejigbo, Araromi-obo, Araromi Iyin, Obaiduajola, Erifun, Ile-Ona, and Ago-Aduloju. Third, using a basic random selection technique, questionnaires were distributed to 38 people in densely populated areas, 18 in

medium-population regions, and 8 in each of the 13 randomly selected rural areas. Data was gathered through a physical survey. Four hundred (400) questionnaires were sent out, and 396 were returned (with a 99% return rate, meaning they were all usable). SPSS version 23 was used to analyse and interpret the data collected. The tables show the findings.

Results

The result in Table 1 reveals that 182(46%) respondents agreed that they used to wait so long before getting a motorcycle/car to the nearest health centre, 61(15.4%) strongly agreed, 100(25.3%) disagreed, 45(11.4%) strongly disagreed and 8(2%) undecided. (38.6%) respondents agreed that the cost of accessing health care in the health centre is usually high, 114(28.8%) strongly agreed, 97(24.5%) disagreed, 29(7.3%) strongly disagreed and 3(0.8%) undecided, 178(44.9%) respondents agreed that the choice of transport mode to the nearest health centres, 111(28%) strongly agreed, 65(16.4%) disagreed, 22(5.6%) strongly disagreed and 20(5.1%) undecided. Whether the condition of the road determines the patronage of health centres, 221(55.8%) respondents agreed, 108(27.3%) strongly agreed, 47(11.9%) disagreed, 15(3.8%) strongly disagreed, and 5(1.3%) undecided. 167(42.2%) respondents agreed that distance is significant barrier to the patronage of health centres, 134(33.8%) strongly agreed, 56(14.1%) disagreed, 18(4.5%) strongly disagreed and 21(5.3%)

undecided, 167(42.2%) respondents agreed that patronage of health centres is not affected by distance, 87(22%) strongly agreed, 106(26.8%) disagreed, 33(8.3%) strongly disagreed and 3(0.8%) undecided. Whether bad road condition leads to a significant decrease in the patronage of health facilities, 151(38.1%) respondents agreed, 133(33.6%) strongly agreed, 78(19.7%) disagreed, 27(6.8%) strongly disagreed and 7(1.8%) undecided. (47.2%) respondents agreed that there is a significant increase in the level of patronage of health facilities due to improvement in road infrastructure, 121(30.6%) strongly agreed, 59(14.9%) disagreed, 22(5.6%) strongly disagreed and 7(1.8%) undecided.

It can be seen that most of the respondents agreed that the cost of accessing health care is on the high side, that the condition of the road determines the choice of a means of transport, and that bad roads may reduce the level of patronage in the health facilities. Also, improving the condition of roads may encourage people to patronise the available health facilities as transport costs and waiting time will be reduced. Adebayo et al. (2017) support this in their study of transportation constraints to rural health accessibility in Ogun Waterside Local Government Area, Ogun State, Nigeria. The study finds that lack of transport infrastructures and poor road maintenance are the significant causes of inaccessibility to the few available health facilities in the study area.

Table 1: Impacts of road transport system on the patronage of health facilities in the study

S/N	ITEMS	A	SA	D	SD	UND
1	You wait so long before getting a motorcycle/car to the nearest health centre	182 46.0%	61 15.4%	100 25.3%	45 11.4%	8 2.0%
2	The cost of accessing health care in the health centre is usually high	153 38.6%	114 28.8%	97 24.5%	29 7.3%	3 0.8%
3	The choice of transport mode to the nearest health centres	178 44.9%	111 28.0%	65 16.4%	22 5.6%	20 5.1%
4	The condition of the road determines the patronage of health centres	221 55.8%	108 27.3%	47 11.9%	15 3.8%	5 1.3%
5	Distance is a significant barrier to the patronage of health centres	167 42.2%	134 33.8%	56 14.1%	18 4.5%	21 5.3%
6	Patronage of health centres is not affected by distance	167 42.2%	87 22.0%	106 26.8%	33 8.3%	3 0.8%
7	Bad road condition leads to a significant decrease in the patronage of health facilities	151 38.1%	133 33.6%	78 19.7%	27 6.8%	7 1.8%
8	There is a significant increase in the level of patronage of health facilities due to improvements in road infrastructure	187 47.2%	121 30.6%	59 14.9%	22 5.6%	7 1.8%

Hypothesis

Ho₁: There is no significant relationship between the condition of the road and patronage of health facilities in the study area.

Hi₁: There is a significant relationship between the condition of the road and patronage of health facilities in the study area.

Table 2: Spearman Rank Order Correlation showing the condition of roads and patronage of health facilities in the study area

Variable	N	Mean	SD	r	p
Condition of road	396	40.71	5.84		
Patronage of health facilities	396	58.44	6.60	0.682*	0.000

* $p < 0.05$

Cursory in Table 4.12 indicated a significant relationship between the condition of the road network and patronage of health facilities in the study area ($r=0.682$, $p<0.05$). The null hypothesis (H_o) is rejected, while the alternate hypothesis (H_i) is accepted. The correlation between the road network condition and patronage of health facilities in the study area is statistically high and positive at a 0.05 significant level.

Discussion

The hypothesis was tested to know whether a relationship exists between the condition of road networks and patronage of health facilities in the study area. The Spearman Rank Order Correlation revealed that the correlation value $r=0.682$ is statistically high in a positive direction at a 0.05 significance level. The interpretation of this is that there is a strong relationship between transport and patronage of health facilities. The findings in this study align with the results of Omotoso (2009) in his research on accessibility to medical facilities in the rural areas of Ekiti State, Nigeria. Findings showed that accessibility is a prerequisite for the patronage of any medical facility. Correlation analysis in his study, using transport cost, revealed that accessibility affects trade, meaning that the more accessible the health facilities are, the higher the level of patronage and vice-versa.

The study also corroborates the study of Gbadamosi (2016) in his survey on rural road infrastructural challenges: An impediment to health care service delivery in Kabba – Bunu local Government area of Kogi State, Nigeria. Findings revealed that road transport infrastructures are required to support

qualitative health care delivery. Poor road networks and high transport costs are responsible for problematic access to medical treatment. It was further noted that the epileptic nature of transport infrastructures also compounds health workers' ability to respond quickly to emergencies in rural areas.

In the same vein, this study supports the findings of the Policy Brief Report by the University of Minnesota (2017); their result showed that transportation is an issue of significant concern for rural health and stakeholders nationwide. The study is also in line with Adebayo et al. (2017), whose findings revealed that lack of transport infrastructures and poor road maintenance are the significant causes of inaccessibility to the health facilities in the study area. Filani (1998) noted that one of the major prerequisites for the efficient functioning of a place is the facility for the movement of people, goods and services quickly and economically. Ademiluyi and Solanke (2002) also opined that adequate and efficient rural feeder road networks serve as channels for collecting and exchanging goods and services, moving people, and disseminating information. It was also revealed that rural roads help enhance rural productivity and strengthen rural communities' socio-economic, cultural, political and development processes. They have also established a close and positive relationship between improved rural transport and socio-economic Development (Levy, 1996; Ahmed and Hossain, 1990; Howe, 1981). Observation is that improved rural accessibility and mobility can reduce the poverty level of rural people because the necessities of life, such as health

care delivery, education, and postal services, will be more accessible to them.

Conclusion and Recommendations

The study focused on assessing the influence of road infrastructure on access to health facilities in Ado Ekiti, Nigeria. Access to healthcare services is essential for improving public health, and road infrastructure plays a pivotal role in facilitating this access. The study found that road infrastructure significantly impacts the patronage of health facilities. The respondents reported that long waiting times for transportation to the nearest health centres, high healthcare costs, and the condition of the roads are significant factors affecting their access to healthcare. Additionally, the study indicated that improving road infrastructure can lead to increased patronage of health facilities by reducing transportation costs and waiting times. The results align with previous research, confirming that accessibility is crucial to healthcare facility patronage. The road network condition in the study area exhibited a strong positive correlation with the patronage of health facilities, emphasising the significance of road infrastructure in healthcare access.

Based on the findings, several recommendations can be made to enhance healthcare access in the Ado Ekiti region and similar areas:

- **Road Infrastructure Improvement:** There is a clear need to improve road infrastructure in the study area. Road maintenance, construction, and rehabilitation should be a priority to reduce travel times and costs.

- **Reducing Healthcare Costs:** Efforts should be made to reduce the cost of healthcare services, particularly in health centres. This can be achieved through government subsidies, health insurance, or other financial support mechanisms to make healthcare more affordable.
- **Transportation Services:** Enhancing public transportation services, such as providing more accessible and affordable transportation options to health centres, can help alleviate some of the barriers faced by the population.
- **Promoting Healthcare Awareness:** Awareness campaigns and community engagement should be conducted to educate the population about the importance of timely healthcare access and the role of road infrastructure in this regard.
- **Regional Planning:** Future regional development plans should consider the need for well-planned road networks, particularly concerning the location of healthcare facilities. Strategic placement can ensure healthcare centres are easily accessible to the population.
- **Government Commitment:** The government should firmly commit to improving healthcare access by investing in road infrastructure and related services. Public-private partnerships can also be explored for sustainable development.

References

- Adebayo, O.O., Oluwaseyi, J.A., & Olalekan A.O. (2017). Transportation constraints to Rural Health Accessibility in Ogun Waterside Local Government Area of Ogun State Nigeria. *JORIND*, 15(1), 1-10. Available at www.transcampus.org/journal; www.ajol.infr/journals/jorind
- Ademiluyi, I.A., & Solanke, M.O. (2002). An Appraisal of Rural Transport situation in Nigeria. In O.A. Ibitoye (Ed.), *Rural Environment and Sustainable Development* (pp. 174-180). Ado-Ekiti: Petoa Educational Publishers.
- Ahmed, R., & Hossain, A. (1990). *Development Impact of Rural Infrastructure in Bangladesh*. Washington, D.C.: International Food Policy Research Institute.
- Akintola, S.R. (2007). Coping with infrastructural deprivation through collective action among rural people in Nigeria. *Nomadic Journal of African Studies*, 16(1), 30-46.

- Filani, M.O. (1988). Mobility and survival. Daily Sketch, Friday, April, 5.
- Gbadamosi, K.T. (2016). Rural Road Infrastructural Challenges: An Impediment to Health Care Delivery in Kabba – Bunu Local Government Area of Kogi State, Nigeria. *Academic Journal of Interdisciplinary Studies*, 5(2), 35-37.
- Howe, J. (1981). Impact of Rural Roads on Poverty Alleviation: A Review of the Literature. International Labour Office Income Distribution and Employment Programme, Working Paper No. 106. Geneva: International Labour Organization.
- Levy, H. (1996). Kingdom of Morocco Evaluation Report: Socio-Economic Influence of Rural Roads. Operation Evaluation Department. Washington, D.C.: The World Bank.
- Omotoso, O. (2009). Accessibility to Medical Facilities in the Rural Areas of Ekiti State, Nigeria. *African Research Review*, 3(5).