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Remoteness as a Preconditional Factor in the Utilization of Health Service Delivery in Akoko South-West LGA, Ondo State, Nigeria

Ogunade, A. O[1,] Ogunbodede, E.F[2] Ale, A.S[3] and Akinloye, K.F[4]

[1,2, & 3]Department of Geography and Planning Sciences, Adekunle Ajasin University, Akungba, Akoko, Ondo State, Nigeria.
[4]Department of Geography, University of Ilesa, Osun State, Nigeria

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Corresponding author: Ogunade Adebola Oluwakayode

Abstract **Original Research Article**

This study investigated the impact of remoteness on the utilization of health services in Akoko South-West Local Government Area (LGA) of Ondo State, Nigeria. Despite the United Nation's Sustainable Development Goal 3 premium consideration to human health which focuses concern on ensuring healthy lives and promoting well-being and efforts to improve healthcare accessibility for all at all ages in rural areas, the health system across many sub-Saharan African countries is in precarious conditions. This research employed a multistage sampling technique, purposive sampling method were used to select settlements according to their level of remoteness. Households within the selected settlements were selected using simple random sampling. Health workers and health facility administrators were selected through convenience sampling. A total of 170 questionnaire were administered to 100 community members and 70 health workers or administrators. The findings from this study revealed that the 40.6% of the respondents claimed that the roads were in bad shape and had become obstacles to accessing healthcare. This study, therefore, recommended that the government priorities the construction and enhancement of healthcare facilities in distant parts in Akoko South-West LGA, along with the improvement of road networks and transportation choices to promote better access to health services. Furthermore, to mitigate the disparities induced by distance, the deployment of mobile health units should be employed through community efforts. Also, there should be a synergy and partnership between private and government organization on road rehabilitation to further enhance easy access to health care facilities in the rural communities. Provision of enabling environment such as financial incentives, and accommodation that can entice the interest of the healthcare providers in rural areas of Akoko South-West LGA. These measures are crucial for ensuring equitable healthcare delivery in remote areas of Akoko South-West LGA.

Keywords: Remoteness, Health Centers, Road Infrastructure, Transportation Costs, Healthcare Availability

1. INTRODUCTION

Access to and use of healthcare facilities is a critical health issue for the population's survival and well-being, particularly in the rural areas. Nevertheless, in most developing nations, including Nigeria, some barriers prevent rural residents from using the health service delivery. These barriers include the size of facilities, transport availability, service cost, uneven distribution of health facilities, and difficulty in getting to available healthcare providers (Fatmi Z, 2002). In most developing countries, with particular reference to Nigeria, despite the attention human health is given in the list of the Sustainable Development Goals (SDGs) of United Nations, rural dwellers still lack adequate transportation infrastructure, with most of the local roads being unpaved or poorly graded seasonal routes. These routes serve farms, markets, water supply sources, and possibly other facilities. The united nation Sustainable Development Goal 3 focuses on the improvements of the general health of the people to prevent the periphery from suffering from preventable diseases and child mortality due to a lack of maternal and the health service delivery. Additionally, it aims to provide timely access to high-quality, reasonable medication and vaccines, promoting affordable access to health facilities in terms of travel time and transport cost which is essential to the achieving of the united nations 2030 agenda, as these factors would increase the overall cost of health service delivery in areas with highly low-income earners. Given the concerns about the various relationships that exits between transportation and health service delivery in the rural areas of developing nations, it has become important to examine the various impacts of distance and the utilization of health service delivery in the rural area context in Nigeria, most importantly, in Akoko South-West LGA, Ondo State.

2. CONCEPTUAL FRAMEWORK AND LITERATURE REVIEW

Remoteness is the social and physical distance between a population and essential resources and services, such healthcare. It usually consists of isolated areas, poor infrastructure, and limited access to modern conveniences, all of which reduce service use. Since remoteness impacts availability and accessibility, particularly in rural or challenging-to-reach areas, it has a significant impact on healthcare delivery (Kuteyi, 2017; Healthcare Communications Journal, 2020).

Concept of Rural Accessibility

For many academics, accessibility might signify different things. The Oxford Advanced Dictionary (1980) defines accessibility as the ease of accessing a location or the method by which a particular goal could be accomplished. It is a location's innate qualities or advantage in terms of overcoming certain types of friction. The three main components of accessibility are affordability, accessibility, and availability. Since accessibility is a key component of the supply and demand of facilities at the individual or group level, Miller (1999), as cited in Ale (2014), states that the concept is essentially used to explain the growth of urban and rural areas in relation to the geographical location and functions of various facilities and land use pattern. For the purposes of this study, accessibility will therefore be viewed as a function of population or health care delivery proximity as measured by distance along local roads, trails, and footpaths. Since accessibility to health facilities is a key indication of health development, this examines the interaction between the people living in rural areas and the necessary health care facilities as well as the transportation system connecting these people to the research area. Kalirajam (2004). According to estimates from the World Health Organization (2010b), prompt access to health care delivery can save 75% of maternal mortality in the most rural locations. As mentioned, health service delivery will be at a disadvantage in keeping medical staff and medication supplies in rural areas without sufficient rural transport development, which lowers the ratio of health professionals (Muleta, 2006). Nonetheless, prompt access to health care delivery in both urban and rural areas could avoid these issues. As a result, the Millennium Development Goals (MDGs) for 2050 might be accomplished without sufficient rural transport development, which would underserve the delivery of health services in the majority of developing nations' rural areas. The benefits and usefulness to the public, particularly in rural regions, increase with the proximity and ease of access to healthcare services. However, as the World Bank (2007) points out, getting health services in developing nations is extremely costly and far away. According to Fatoke (2013), a health center's degree of patronage is influenced by its skilled staff, effective service delivery, and high-quality medical facilities. He also believes that the kind of services that are provided to the public will depend on the caliber of the medical staff and facilities that are available. Transportation issues have deterred medical professionals from being assigned to rural health care facilities, which is the cause of the lack of available health personnel.

According to Olawole et al. (2020), mobility and accessibility can help lower rural residents' levels of poverty by making basic services like healthcare and education more available to them. As a result, long wait times, lengthy treks, insufficient transportation options, and high transportation costs are all factors that affect medical professionals' and rural residents' access to effective transportation in remote locations. The annual death toll from stillbirth serves as the finest example of the consequence of poor access to health care delivery in rural areas (World Bank, 2000). In many rural areas of Nigeria, people—especially women and the elderly—travel long distances on subpar roads before reaching the closest health service centres for medical check-ups and other health assistance, such as child vaccinations, which frequently require them to trek long distances (Anita, 2014). Notwithstanding the significance of rural areas to the metropolitan populace, Nigerian rural residents' inability to effectively move about to satisfy their daily needs is a result of a lack of transportation infrastructure, particularly roads and bridges. The availability and quality of rural transport in Ghana (Porter, 2002), the growth of rural transport in Kenya (Mengesha, 2010), the advantages of improving accessibility and mobility in a rural area of Beijing (Starkey 2014). In their various studies on Nigerian rural areas, Olawole et al. (2010), and Ipingbemi (2010) discovered that inexpensive, user-friendly, and adaptable public transportation is crucial for rural residents to access health care services as well as to build and preserve social and familial ties. The nature of rural transportation and the resulting effects on rural residents' access to health facilities, such as long travel and trekking times, high transportation costs, vehicle breakdowns, lengthy park wait times, and insufficient operational services, were not given enough attention in these studies. Instead, they concentrated solely on the availability, quality, socioeconomic and environmental effects, challenges, and opportunities that can be derived from rural transportation. Given these gaps, this study examines remoteness as a prerequisite for using health services in Akoko South-West LGA, Ondo State, Nigeria.

It aims to identify the obstacles that rural residents currently face in obtaining health services and offer solutions to these obstacles in order to make room for the

evaluation of quality medical facilities and health services that will further boost productivity, raise life expectancy, and lower the infant mortality rate in rural areas (Adefila, 2008).

3. MATERIALS AND METHOD

The study area is the rural area of Akoko South West Local Government Area. Akoko South West LGA lies between latitudes 5° 31' and 6° 01' North of the equator and between Longitudes 7° 21' and 7° 31' East of the Greenwich meridian. The study area is bounded in the West by Emure LGA of Ekiti State and in the East by Akoko South East LGA of Ondo State, while Akoko North East LGA and Owo LGA of Ondo State bounded the study area in the North and South respectively (Ale, 2006). The entire population of the study area was 228, 383. It was recorded that 41.8% of the total population falls within the age grade of 1-18 years old, 54.6% falls within the age grade of 19- 59 years, while the remaining 3.8 per cent are the elderly age representing 60 years old and above. In 2012, the estimated population increased to over 250,000 while the projected population of the study area for 2023 is 398,607. (National Population Commission, 2006).

The study area has a total number of 42 private and public health care service centres, of which 29 are primary health centres, 5 are basic health centres within the towns and villages, 7 private clinics and 1 General Hospital serves as a referral centre from the primary health care centres (Ondo State Hospital Board, 2019). Primary health care services are more important and the communities in the rural area constitute the first level of contact where health services are conveniently provided to the recipients, (Ogunade and Ale, 2022).

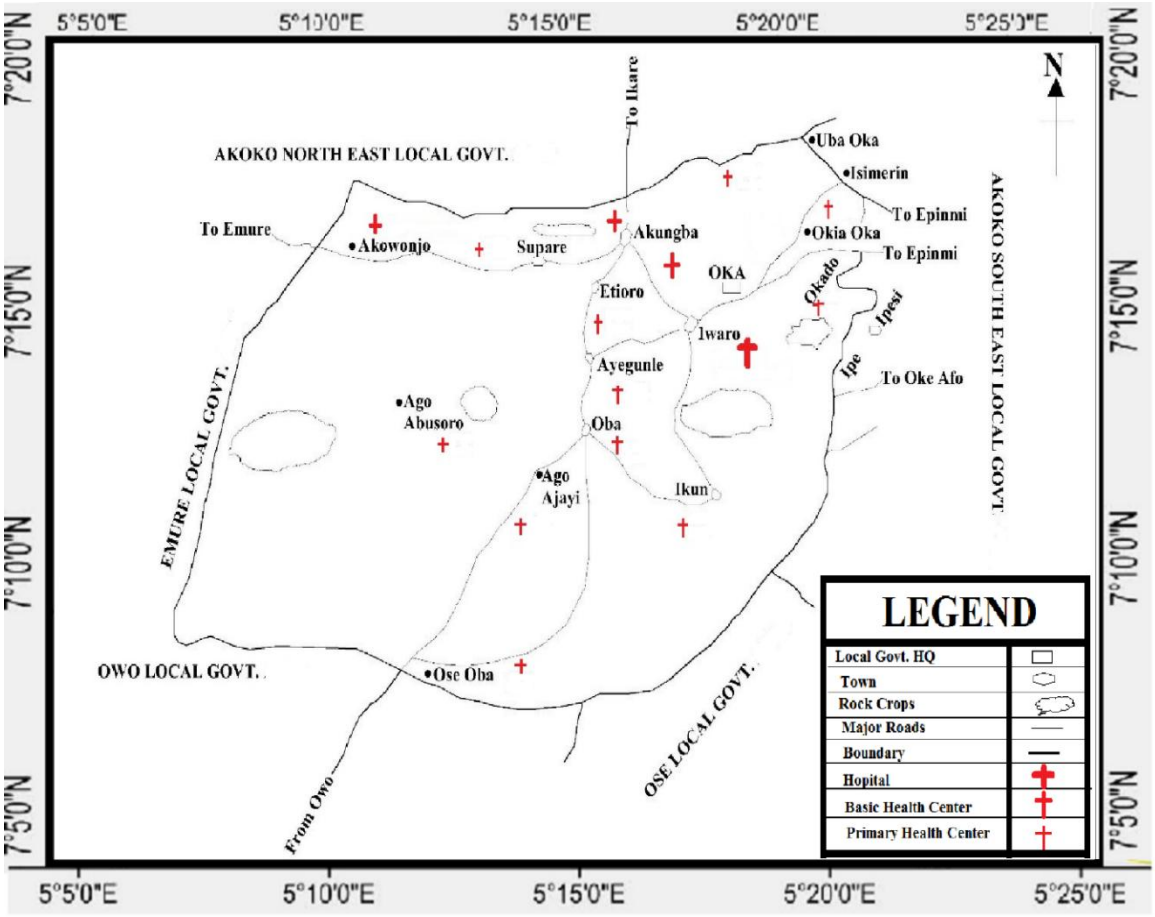

Fig. 1: *Distribution of Health Care Centre in the Study Area.*
Source: *Author's Field Survey, 2024*

The main transport system of Akoko South West LGA allows the movement of people, goods and services within and between settlements in the study area. The total length of inter-urban, intra-rural and inter-rural roads in Akoko South West LGA is about 569km (Ogunade and Ale, 2022). They are mainly inter-urban roads linking Oka Akoko the Local Government Headquarters to Ibilo (Edo State) and the road linking Owo to Ikare Akoko. Others, include the state road linking Oba to Ikun to Iwaro and Akungba to Supare among others. While the Local Government roads within the rural areas linking villages and farmsteads.

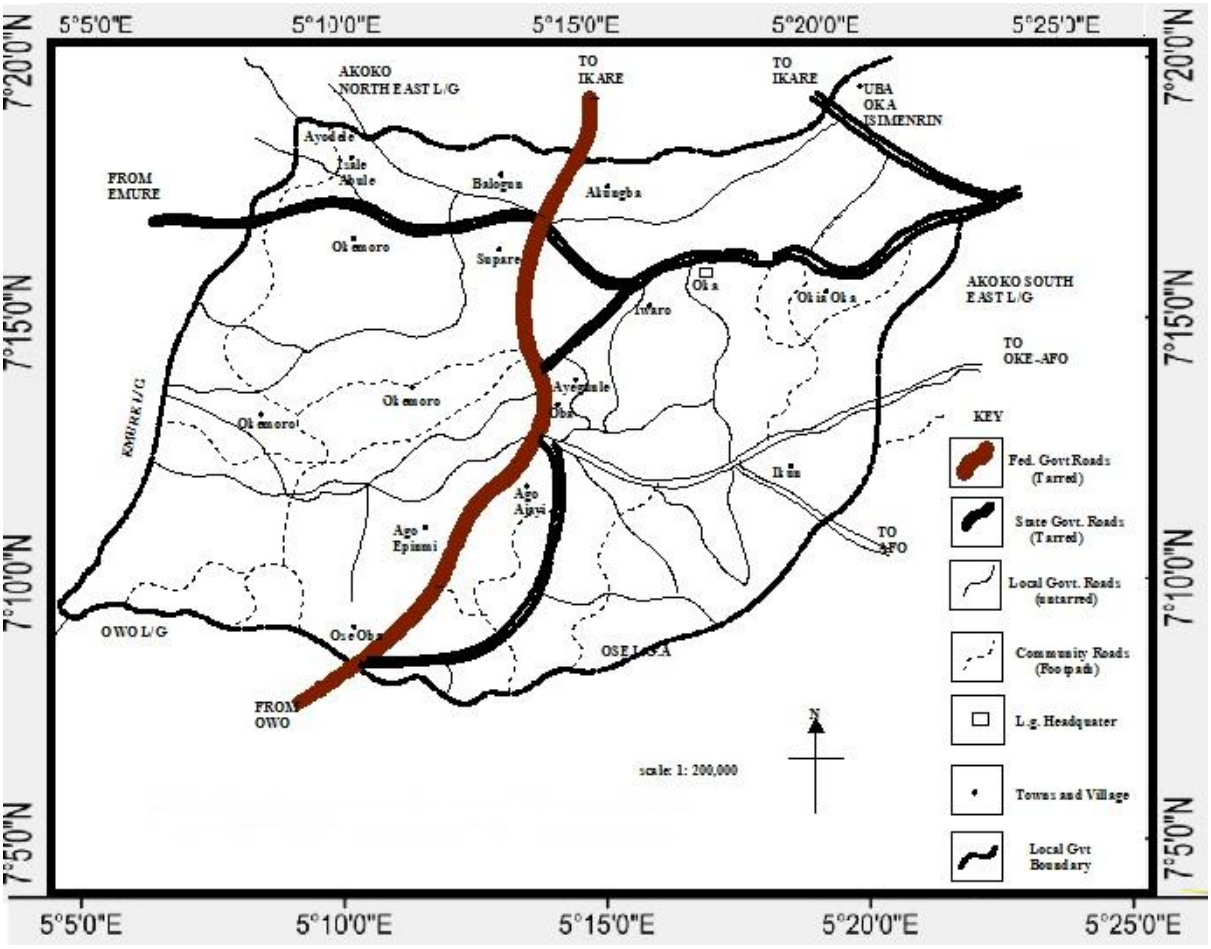

Fig. 2: *The Road Map of Akoko South West LGA*
Source: *Adapted from Ogunade (2022)*

This study employs a cross-sectional descriptive survey design to investigate the connection between remoteness and the use of health services. The investigation centres on multiple wards within Akoko South-West LGA, employing a combination of qualitative and quantitative methods for data collection. The demographic consists of individuals living in rural and semi-urban areas within Akoko South-West LGA. Health service providers, including hospitals, clinics, and health centres, along with key stakeholders such as health workers, patients, and local authorities, constitute the target group. A multistage sampling technique was utilized for this study, with purposive sampling applied to choose the communities according to their degree of remoteness. Households within the identified communities are selected using simple random sampling. Health workers and health facility administrators are chosen through convenience sampling. A total of 170 individuals participated in the survey, comprising 100 community members and 70 health workers or administrators. The independent variable assessed encompasses Remoteness, evaluated through the distance to the nearest health facility, the quality of the road network, and transportation access. The dependent variable examined includes the utilization of health services, gauged by the frequency of visits, the types of services utilized, and patient outcomes. Additionally, control variables are taken into account, focusing on socioeconomic factors such as education level, income, and occupation. The analysis of the respondents' data was conducted through descriptive statistics, including mean, frequency, and percentage.

4. RESULTS AND DISCUSSION

Table 1: Gender of the Respondents

Variables	Frequency	%
Male	47	27.6
Female	123	72.4
Total	**170**	**100.0**

Source: *Author's Field Survey, 2024*

The analysis of respondent reveals a notable gender imbalance in health service usage within Akoko South-West LGA, as depicted in Table 1. In detail, 27.6% of the participants identified as male, whereas 72.4% identified as female. This finding reveals that a larger percentage of female respondents are utilizing health services in comparison to their male counterparts. Studies in healthcare utilization have consistently demonstrated that gender significantly influences who seeks health services. A number of studies indicate that women tend to pursue healthcare services more frequently than men. Mansour et al. (2018) observed that women frequently take the initiative in pursuing healthcare services, driven by their reproductive health needs and responsibilities related to child care. This is especially clear in rural areas where there is a strong emphasis on maternal and child health services. The study found that social norms and familial obligations significantly influence women's healthcare-seeking behaviour, leading to higher utilization rates than those observed in men. Additionally, Ewunetie et al. (2020) conducted a study in rural Nigeria and discovered that women represented around 65% of health service users, underscoring comparable patterns where women are actively involved with healthcare systems, frequently driven by maternal and child health requirements. The investigation highlighted that cultural elements and caregiving responsibilities played a crucial role in shaping women's choices regarding healthcare services.

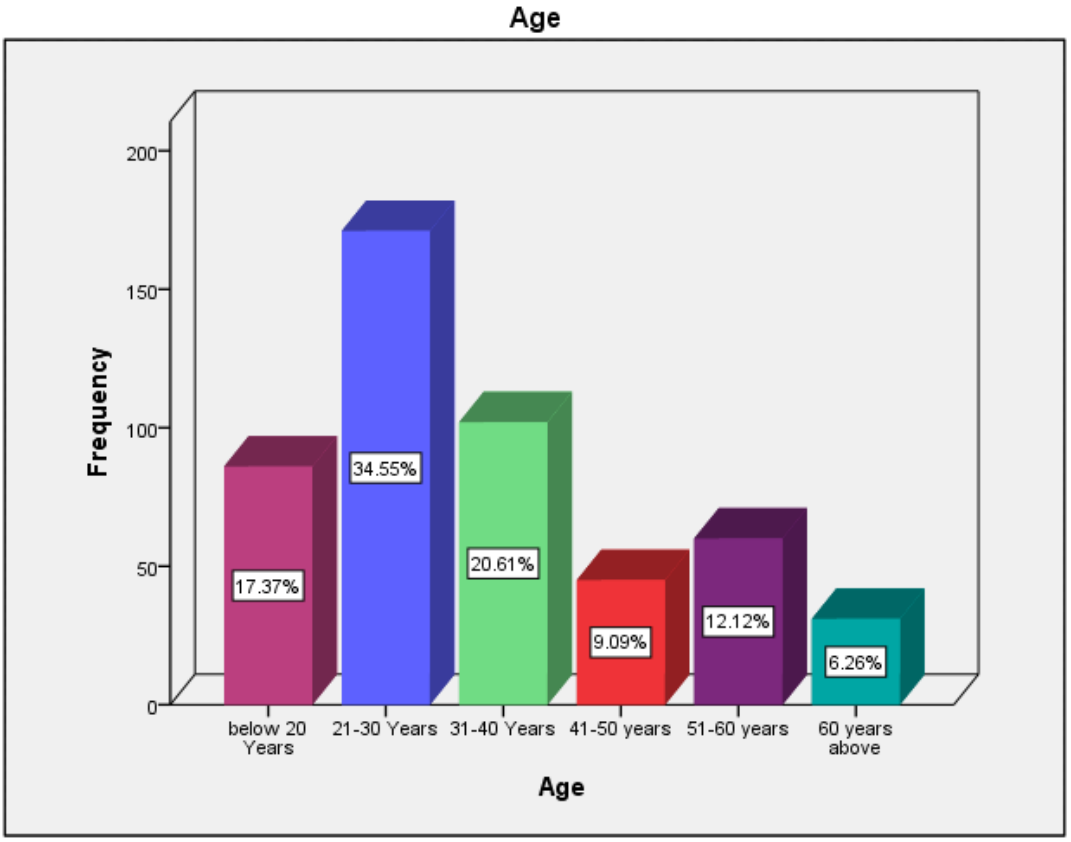

Figure 4: *Age structure of the Respondents*
Source: *Author's Field Survey, 2024*

Figure 4 indicates that 17.37% of the respondents fall below 20 years of age, while 34.55% of the respondents in the study area were within the age group of 21 and 30 years old. 20.61% of the respondents were between the age group of 31 and 40 years old. While those between the ages of 41-50 represents 9.09% of the respondents. 12.12% represents those whose ages falls between 51-60 years old. Those above the age of 60 years were 6.26%. The analysis reveals that bulk of the respondents are youth who were matured enough to visit the available health care facilities in the study area, therefore they were in the best position to give relevant information on the effects of rural transport and access to health service delivery in the study area. The age distribution reveals that a significant portion of respondents falls within the youth demographic, especially those aged 21 to 30 years, who generally exhibit higher mobility and enhanced access to healthcare services. The demographic profile indicates that younger individuals tend to pursue healthcare services and participate in health-related discussions, offering important insights into the effects of rural transport and access to health service delivery. Studies indicate that age plays a crucial role in shaping patterns of health service utilization. Young adults and youth often utilize healthcare services more regularly than older populations, influenced by factors such as health awareness, mobility, and the perceived significance of preventive healthcare. A study conducted by Bohanna et al. (2016) indicates that younger individuals tend to utilize health services more frequently, likely due to their heightened awareness of health issues and greater engagement in health-seeking behaviours. The findings indicate that young individuals are progressively assuming responsibility for their health, resulting in elevated usage rates of healthcare services when compared to older demographics. Furthermore, Akin et al. (2017) indicate that obstacles like transportation issues have a significant impact on older individuals, leading to reduced utilization rates within this group. Younger adults generally possess improved access to transportation and resources, which facilitates their ability to seek care more easily.

Table 2: Level of Education the Respondent

Variables	**Frequency**	**%**
No Formal Education	47	27.6
Primary Education	72	42.4
Secondary Education	30	17.6
Tertiary Education	21	12.4
Total	**170**	**100.0**

Source: *Author's Field Survey, 2024*

The education status of the respondents was examined and the result revealed that 27.6% of the respondents have no formal education, 42.4% have primary education, 17.6% of the respondents have secondary education and the remaining 12.4% of the respondents have tertiary education. This implies that larger proportion of the respondents only has primary education. The distribution reveals that a substantial percentage of respondents (42.4%) have achieved only primary education, potentially impacting health service utilization within the community. A study by Nyonator et al. (2005) indicates that communities with lower educational attainment frequently demonstrate a lack of awareness regarding available health services, resulting in underutilization. In rural Ghana, for example, reduced educational attainment was linked to a lower probability of obtaining healthcare services. Afolabi et al. (2014) noted that educational disparities, especially among women, lead to reduced healthcare utilization rates in Nigeria, emphasizing the necessity for focused interventions to enhance education and healthcare access.

Table 4: *Monthly Income of the Respondents*

Variables	Frequency	%
Below ₦10,000	25	14.7
₦21,000 to ₦30,000	39	22.9
₦31,000 to ₦40,000	40	23.5
₦41,000 to ₦50,000	20	11.8
Above ₦50,000	46	27.1
Total	**170**	**100.0**

Source: *Author's Field Survey, 2024*

The monthly income of the respondents was examined and the result revealed that 14.7% of the respondents earn below ₦10,000 monthly, 22.9% of the respondents earns between ₦21,000 to ₦30,000 monthly, 23.5% of the respondents earns between ₦31,000 to ₦40,000 monthly, 11.8% of the respondents earns between ₦41,000 to ₦50,000 monthly and the other respondents 27.1% earns between ₦50,000 and above monthly. The income distribution reveals that a notable segment of respondents (exceeding 37.6%) earns below ₦30,000 monthly, highlighting a low-income demographic in Akoko South-West LGA. This economic constraint can greatly impact healthcare access and utilization, as individuals with lower incomes frequently encounter obstacles in affording transportation, consultation fees, and medication costs. Afolabi, M. O., & Agunbiade, E. M. (2020) conducted a study on healthcare access in rural Nigeria and found that low-income households were less likely to seek medical help due to financial constraints, emphasizing the role of income in health-seeking behaviour. The income distribution of respondents in Akoko South-West LGA highlights the economic challenges that may affect access to healthcare services. This finding aligns with current literature, indicating that lower income is associated with decreased use of health services. Initiatives aimed at enhancing healthcare access in the region must take into account these socioeconomic factors, emphasizing policies that tackle financial obstacles to care.

Table 5: Road Condition in the study area

Variables	Frequency	%
Very Good	25	14.7
Fair	50	29.4
Poor	69	40.6
Very Poor	26	15.3
Total	170	100.0

Source: *Author's Field Survey, 2024*

Analysis from table 5, it was revealed that Infrastructure has an impact on healthcare accessibility, as evidenced by the respondents' views of the state of the roads leading to medical facilities. Of those surveyed, just a small portion (14.7%) thought that the roads leading to local medical facilities were in "very good condition." Only a small

percentage of the population benefits from well-developed road infrastructure, as evidenced by this minority, but 29.4% of respondents said the roads were generally good. Of those who responded, the majority (40.6%) said that the roads were in bad shape. In areas with limited resources, one of the most commonly mentioned obstacles to accessing healthcare is poor road conditions. Finally, 15.3% of the respondents said that the roads were in really bad shape, which suggests that a sizable minority has a very hard time getting healthcare. As demonstrated by studies conducted in sub-Saharan Africa and other developing nations (Harris et al., 2011), seriously poor roads result in fewer and lower-quality medical visits, which frequently exacerbates health disparities, particularly in rural areas. Given that studies have connected inadequate infrastructure to higher mortality rates, the effects on mother and child health in such situations are especially worrisome. With a large percentage of the population reporting bad or very poor road conditions, Table 4.2's data highlights the wide range in the study area's road conditions leading to healthcare facilities. These results are in line with an expanding corpus of empirical research that shows how important infrastructure is to healthcare access. For better healthcare delivery and equal access, particularly in rural or impoverished areas, better road conditions are crucial. On the other hand, inadequate road infrastructure still poses a serious obstacle to reaching the best possible health results, especially for underserved populations.

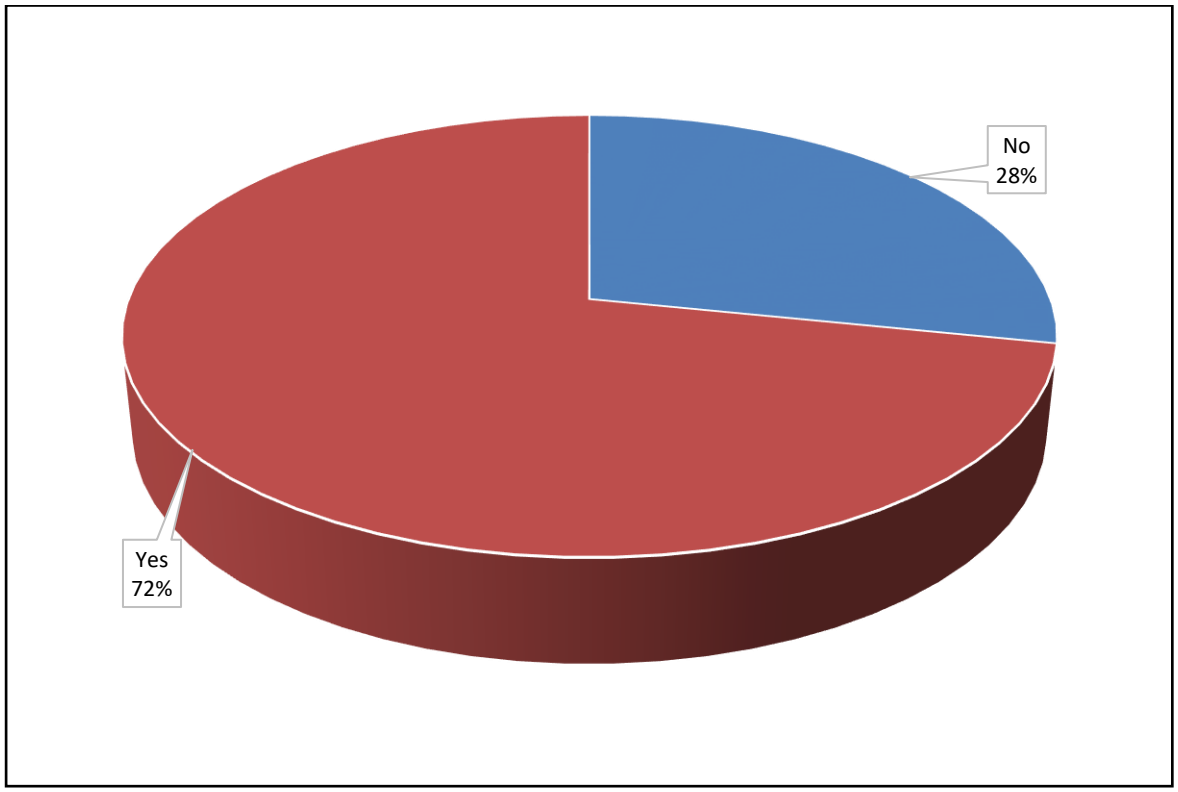

***Figure 5**: The impact of road condition on health utilization*
***Source:** Author's Field Survey, 2024*

The analysis carried out from figure 5 revealed that 72% of respondents assert that the state of the roads in the study area substantially affects their access to health facilities. Conversely, 28% of respondents expressed disagreement, suggesting that road conditions did not substantially affect access to health facilities. Empirical research from several rural contexts worldwide indicates that road conditions significantly affect healthcare access and utilization. In regions such as the AKSW study area, where rural infrastructure is relatively underdeveloped, inadequate road conditions can exacerbate travel time, expenses, and the overall burden on those seeking healthcare services. This elucidates why the majority (72%) of respondents believe that the condition of the road significantly affects access to health services. Nevertheless, the 28% who disagreed may reside in rural regions with superior infrastructure or alternative mobility options, or they may possess differing opinions influenced by their own experiences.

5. CONCLUSION AND RECOMMENDATION

The study on *Remoteness as a preconditional*

factor in the utilization of Health Service Delivery in Akoko South-West LGA, Ondo State, Nigeria revealed that geographical remoteness substantially impacts access to healthcare services in the study area. Communities distant from healthcare facilities have diminished utilization rates attributable to transportation obstacles, insufficient healthcare infrastructure, and a scarcity of healthcare workers. Moreover, the caliber of services in remote regions is frequently inadequate, leading to underutilization despite the availability of services. This aligns with the research conducted by Obinna et al. (2021), which indicates that individuals residing in distant locations are more prone to adverse health outcomes due to delayed healthcare access, insufficient routine check-ups, and difficulties in managing chronic illnesses. Maternal and child health services are significantly affected, as indicated by reduced antenatal care visits and elevated newborn death rates in remote communities. This study, therefore, recommended that the government prioritize the construction and enhancement of healthcare facilities in distant parts in Akoko South-West LGA, along with the improvement of road networks and transportation choices to promote better access to health services. Furthermore, to mitigate the disparities induced by distance, the deployment of mobile health units should be employed through community efforts. Also, there should be a synergy and partnership between private and government organization on road rehabilitation to further enhance easy access to health care facilities in the rural communities. Provision of enabling environment such as financial incentives, and accommodation, which can entice the interest of the healthcare providers in rural areas of Akoko South-West LGA.

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