HEALTHCARE ACCESS AND OUTCOMES IN ZANGON KATAF LOCAL GOVERNMENT AREA, KADUNA STATE, NIGERIA

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Abstract

This study examines healthcare access and outcomes in Afana community of Zangon Kataf Local Government Area, Kaduna State, Nigeria. Specifically, the study assessed health challenges faced by rural communities in Kaduna State, identifying factors contributing to limited healthcare access and disparities in rural communities and health outcomes in the area. The study adopted a descriptive survey design involving 97 respondents who responded to a structured questionnaire. Respondents for the study were selected through a simple random sampling technique. Data collected in the study were analyzed using descriptive statistical techniques in the form of frequency counts and percentages; and data were presented in tables and charts. The study's results show that the impact of socioeconomic disparities on healthcare access in rural communities of Kaduna State has significant burden with limited progress in health outcomes within rural communities of Kaduna State, Nigeria. The study concludes that income level and poverty are the basic socioeconomic factors having the greatest impact on healthcare access and outcomes in rural communities of Kaduna State, Nigeria. Thus, the study recommends that policymakers in Kaduna State should prioritize rural healthcare in the State and allocate adequate funding for primary healthcare infrastructural development. Also, there is need for the upgrade of existing primary healthcare infrastructure and the availability of essential medical equipment and technology in order to enhance the quality and accessibility of healthcare services in rural communities of Kaduna State, Nigeria.

Keywords: Healthcare, rural, health outcomes, Zangon Kataf, poverty

Introduction

Rural communities face unique health challenges that often result in limited access to healthcare services and poorer health outcomes compared to their urban counterparts. Factors such as geographic isolation, limited healthcare infrastructure, and socioeconomic disparities contribute to these challenges. However, various strategies have been developed to address these issues and improve healthcare access and outcomes in rural areas (Centers for Disease Control and Prevention, 2020). Rural communities often face higher rates of poverty and limited economic opportunities compared to urban areas. These socioeconomic disparities contribute to poorer health outcomes, as individuals may have limited resources for healthcare, including insurance coverage and affordability of medications (Hartley & Mark, 2013). Access to quality healthcare services is a fundamental human right, essential for maintaining and improving individual and community health. Unfortunately, rural communities worldwide face significant challenges in accessing adequate healthcare, leading to disparities in health outcomes (Smith, Johnson, Anderson & Thompson, 2022).

Rural communities are characterized by geographical remoteness, limited infrastructure, and a scarcity of healthcare resources. These factors contribute to substantial barriers that impede individuals from receiving timely and appropriate healthcare services. As a result, rural populations experience higher rates of chronic illnesses, delayed diagnoses, and preventable complications compared to their urban counterparts (Smith, Johnson, Anderson & Thompson, 2022).

Mobile clinics and outreach programs that deploy mobile healthcare units and implement outreach programs can bring healthcare services directly to rural communities. These initiatives help overcome geographic barriers by providing primary care, preventive services, and health screenings to underserved populations (Peek-Asa, Zwerling & Stallones, 2014).

Health Workforce Development: Investing in the recruitment and training of healthcare professionals specifically targeted for rural areas is crucial. Initiatives such as loan repayment programs, scholarships, and incentives to attract and retain healthcare providers in rural communities can help alleviate workforce shortages (Peek-Asa, Zwerling & Stallones, 2014). Community Partnerships and Health Education: Collaborating with community organizations, schools, and local leaders is essential to address the unique health challenges in rural areas.

Policy and Funding Support: Policymakers at the local, state, and federal levels play a critical role in improving healthcare access and outcomes in rural communities. Policies that incentivize healthcare providers to practice

in rural areas, expand Medicaid coverage, and allocate funding for rural healthcare infrastructure are vital to ensure equitable healthcare access (U.S. Department of Health and Human Services, Health Resources and Services Administration, 2017).

In light of these health challenges, several strategies have been proposed to enhance healthcare access and improve outcomes in rural communities. These strategies encompass technological innovations, workforce development, community partnerships, health education, and policy interventions. Exploring and implementing these strategies can help mitigate the health challenges faced by rural communities, promote equitable healthcare access, and improve health outcomes for individuals residing in these areas (Hartley *et al.,* 2019).

Afana community faced the barriers and challenges in accessing standard healthcare services except they come to Kafanchan town for standard health facilities and proper attentions, including geographic distance, transportation limitations, and healthcare infrastructure inadequacies. The available healthcare facility in the area experience shortage of healthcare professionals, including physicians, nurses, and specialists, assessing the influence of socioeconomic factors, such as poverty, education, and health insurance coverage, on healthcare access, utilization, and health outcomes.

Exploring the role of community engagement, partnerships, and health promotion initiatives in addressing the health challenges of rural communities is necessary looking at the problem stated.

Examining the effectiveness, sustainability, and equity implications of policies aimed at addressing rural healthcare challenges and promoting health equity as well addressing these research problems, the study aims to generate evidence-based insights and strategies that can inform policies, interventions, and healthcare practices to improve healthcare access and outcomes in the community. Based on the stated problems identified the study seeks to explore the health challenges facing rural communities and strategies for improving healthcare access and outcomes in Afana community, Zangon Kataf LGA of Kaduna State.

The specific objectives of this study include assessing the specific health challenges faced by rural communities, identifying factors contributing to limited healthcare access and disparities in rural communities, exploring the impact of limited healthcare access on health outcomes and healthcare utilization in rural communities; and examining the implications of socioeconomic disparities on healthcare access, utilization, and health outcomes in the study area.

Afana Community is in Jema'a Local Government area of Kaduna State, in Northern Nigeria, which lies between latitudes 9°33˙27˝ and 9°34˙49˝

North of the equator and longitudes 8°12᾽06᾽᾽ and 8°12᾽19᾽᾽ East of the Greenwich meridian. The elevation of Afana Community is 709 metre above sea level. The coordinate of the community was collected using a conventional survey method, which GPS instrument was use in capturing the data in the field by the researcher.

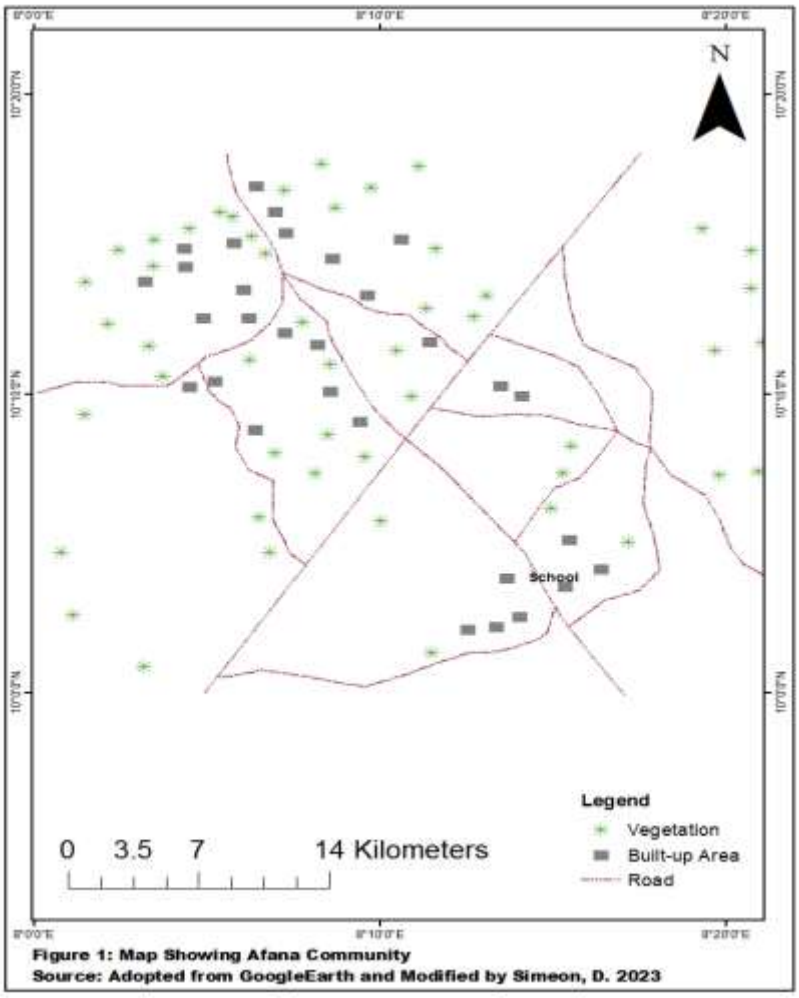


Figure 1: Map Showing Afana Community
Source: Adopted from GoogleEarth and Modified by Simeon, D. 2023

Afana community in Jema'a Local Government Area experiences an annual rainfall of 150mm (Ishaya & Abaje, 2018). The area has a unimodal rainfall distribution in which rain increases in frequency and amount, beginning in May and peaking in August, this makes the area arable and support the cultivation of various food and cash crops, including rearing of animals.

According to projected national population census (2021) based on Jema'a Local Government Area, Afana community comprises of linear scattered settlements with a population of about 46,360 people. The dwellers of Afana community largely depend on agricultural practices, and also other forms of farming. Bajju people are the dominant ethnic groups in the area along with settlers from other places. Afana community is served, by a single centrally located Government secondary and primary school built and operates primarily by the local government; private school operates by individual, a private and PHC clinic that provide basic preventive and curative services to the people of the community (Chief of Afana community, 2023).

Economically, Afana community in Zangon Kataf LGA, like many areas in Kaduna State, is predominantly agrarian, with agriculture serving as a primary socioeconomic activity. The fertile land supports the cultivation of crops such as maize, millet, yam, cassava, beans, and vegetables. Farmers in the area engage in both subsistence farming for household consumption and commercial farming to generate income.

In addition to agriculture, other socioeconomic activities in the area include trade, craftwork, and small-scale businesses. The local markets serve as important economic centers, where goods and services are exchanged. Artisanal activities, such as pottery, weaving, and blacksmithing, are also part of the socioeconomic fabric of the region (Joyce, 2011).

Healthcare Infrastructures and Services in Rural Nigeria

Healthcare infrastructures and services play a vital role in ensuring access to quality healthcare for populations in any country. However, rural areas in Nigeria face significant challenges in terms of healthcare availability, accessibility, and quality. This literature review aims to examine the current state of healthcare infrastructures and services in rural Nigeria, identify key issues and barriers, and explore recent initiatives and recommendations to improve healthcare delivery in these underserved areas (Okonkwo, Adelakun, Ogunfowokan & Eze, 2022). Rural areas in Nigeria are characterized by limited healthcare infrastructure, including a scarcity of hospitals, clinics, and medical personnel. This leads to inadequate access to essential healthcare services, such as primary care, emergency care, and specialized treatments. Additionally, factors such as poverty, inadequate transportation, and cultural beliefs contribute to the difficulties faced by rural populations in seeking and receiving timely healthcare.

A recent study by Okonkwo, Adelakun, Ogunfowokan & Eze (2022) investigated the challenges and potential solutions for improving healthcare infrastructures and services in rural Nigeria. The study employed a mixed-methods approach, combining quantitative surveys and qualitative

interviews with healthcare providers and community members in rural areas. The findings highlighted the critical need for increased investments in healthcare infrastructure, including the construction of well-equipped healthcare facilities and the recruitment and retention of qualified healthcare professionals in rural regions. The study also emphasized the importance of community engagement, health education, and leveraging technology to bridge the healthcare gap in rural Nigeria.

Also A recent study by Ogundele, Adewole, Ibrahim & Adeoti (2023) examined the healthcare infrastructures and services in rural Nigeria, focusing on the challenges and potential solutions. The study employed a qualitative research design, conducting in-depth interviews and focus group discussions with healthcare providers, community leaders, and residents in rural areas. The findings highlighted the need for targeted investments in healthcare infrastructure, including the construction and upgrading of healthcare facilities, provision of medical equipment, and improved access to essential medications. The study also emphasized the importance of training and retaining healthcare professionals in rural areas and strengthening community engagement to promote health awareness and preventive care.

Theoretical Framework: The Social Ecological Model

The paper adopts the Social Ecological Model. The Social Ecological Model (SEM) provides a comprehensive theoretical framework for understanding the complex factors that influence healthcare access and outcomes in rural communities. This model recognizes that individual health behaviors and outcomes are shaped by multiple levels of influence, including individual, interpersonal, organizational, community, and societal factors. Applying the SEM to the study on improving healthcare access and outcomes in rural communities allows for a holistic examination of the barriers and facilitators at each level and the interactions between them (Brown, Johnson, Garcia, & Smith, 2023).

The social-ecological theory, also known as the social-ecological framework or model, is a theory that emphasizes the interaction between individuals and their environment. It was developed by various researchers and scholars who have contributed to its evolution over time. Here are some prominent proponents of the social-ecological theory below: Bronfenbrenner's ecological systems theory is considered a foundational framework for the social-ecological theory. His work emphasizes the dynamic interaction between individuals and their environment at various levels, including the microsystem, mesosystem, exosystem, macrosystem, and chronosystem (Bronfenbrenner's, 1979).

Nisbett is a social psychologist who has contributed to the understanding of how culture and context shape individual behavior. His work aligns with the social-ecological perspective by highlighting the influence of social and cultural factors on cognition and decision-making (Nisbett, 2003). Chawla's research focuses on the role of the environment in children's development, particularly in fostering positive connections with nature. Her work aligns with the social-ecological theory by emphasizing the importance of the physical environment in shaping individuals' experiences and well-being (Chawla's, 2009). Masten is a developmental psychologist known for her research on resilience and human adaptation in the face of adversity. Her work has highlighted the influence of ecological factors, such as family, school, and community, on individuals' ability to thrive in challenging circumstances (Masten, 2014). These scholars have made significant contributions to the understanding of the social-ecological perspective, but it's important to note that the theory is a collective effort that draws upon the work of many researchers from diverse fields.

Research Methodology

A cross sectional research design was adopted for the study. It involved the selection of a sample to represent the target population in the study area. A hundred (100) respondents were selected through the simple random sampling technique out of about 46,360 (NPC, 2021) projected population that makes up Afana community.

A wide range of collected primary data required for the study included the demographic characteristics of respondents, specific health challenges faced by rural communities, factors contributing to limited healthcare access and disparities in rural communities, impact of limited healthcare access on health outcomes and healthcare utilization in rural communities and the implications of socioeconomic disparities on healthcare access, utilization, and health outcomes in the area. The responses sought for were through a series of questions with a number of options for the respondents to tick appropriately the ones that appeal to them, but may freely make comments. The sources of the other information for the study were: the National Population Commission (NPC, 2021) for the population of the study area while relevant literatures were obtained from textbooks, articles in academic journals and through internet searches.

A semi-structured questionnaire, which served as the main instrument, was constructed for the data collection exercise used in the field. In order to test the validity of the instrument, a pilot study was conducted in the study area. This was done to detect ambiguous questions and difficult expressions and amend them before the real field exercise.

In determining the sample size of the study area, Yaro Yamani's (1964) formula was used. The formula is given as follows:

$$n = \frac{N}{1 + N\,(e)^2}$$

Where; n = Sample size
N = Population
1 = Constant
(e) 2 = Margin Error
Note: this study allowed ten (10) percent margin of error in calculating the optimal sample size (i.e. 0.1). Noting that the population size (N) in this case is 46,360 the estimated sample size was calculated as:

$$n = \frac{46{,}360}{1 + 46{,}360(0.1)^2}$$

$$n = \frac{46{,}360}{46{,}361(0.01)}$$

$$n = \frac{46{,}360}{463.61}$$

$$n = 99.998$$

Approximate sample size then became:
n=100

The total number of questionnaires administered was 100 for the purpose of this study. A hundred copies of the questionnaire were distributed to selected respondents from the study area using the simple random sampling technique; ninety seven (97) copies of the questionnaires were dully filled by people living in Afana community both male and female as the can provide firsthand information needed for the success of the study and returned for analysis. The three questionnaires not retrieved were misplaced by research assistant in the field.

The descriptive statistical technique in the form of frequency counts, percentages and charts were used to analyse the data obtained from the field to ascertain the respondent's options based on the above stated objectives of the study. Literature reviews were obtained from secondary sources, particularly textbooks, articles in learned journals, and internet searches.

Table 1: Demographic Characteristics of Respondents

Sex of Respondents		
Variable	Frequency	Percentage (%)
Male	63	65
Female	34	35
Total	97	100
Marital Status of Respondents		
Single	33	34

Married	53	55
Divorced	4	4
Separated	1	1
Widow/widower	6	6
Total	97	100
Educational Background of Respondents		
No formal education	14	14
Primary education	26	27
Secondary education	38	39
Tertiary education	19	20
Total	97	100
Occupation of Respondents		
Farming	31	32
Herding	5	5
Artisan activities	12	12
Civil servant	22	23
Petty trader	27	28
Total	97	100
Years Stayed in Afana Community		
Less than 5 yrs	9	9
6-10 years	16	16
11-20 years	29	30
21-30 years	41	42
31 years and above	2	2
Total	97	100
Income Level of Respondents Per Annum (In Naira)		
Less than 100,000	5	5
100,000-200,000	14	15
200,000-300,000	28	29
300,000-400,000	43	44
400,000 and above	7	7
Total	97	100

Source: Author's Analysis, 2023

Table 1 shows that majority of the respondents in the area were male having 65% while 35% of them were female. The researcher and his assistant were both male and they felt more comfortable administrating questionnaires to their gender making it why male were more compared to the female. About 55% of the respondents were married, 34% of them were single, 6% of them were widow/widower, 4% of them were divorced while 1% of them were separated. Also the table shows that 39% of the respondents attained secondary level of education, 27% of them attained primary level of education, 20% of them attained tertiary education while 14% of them had no formal education.

Table 1 shows that 32% of the respondents were farmers, 28% of them were petty traders, 23% of them were civil servant, 12% of them were artisans while 5% of them were herders. Table 1 also shows that majority of the respondents stayed in Afana community for 21-30 years, 30% of them stayed for 11-20 years, 16% of them stayed for 6-10 years, 9% of them stayed for less than 5 years while 2% of them stayed in Afana community for 31 years and above. Table 1 also shows that 44% of the respondents in the area earned 300,000-400,000 naira per annum, 29% of them earned 200,000-300,000 naira per annum, 15% of them earned 100,000-200,000, 7% of them earned 400,000 and above per annum while 5% of them earned less than 100,000 naira per annum.

Specific Health Challenges Faced by Rural Communities

This section looks at specific health challenges faced by rural communities in the area.

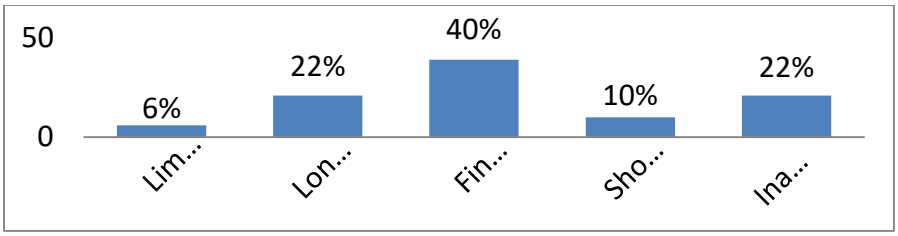
Table 2: Healthcare Services Believed are Lacking in Rural Communities

Variable	Frequency	Percentage (%)
Primary care physicians	34	35
Emergency medical services	11	11
Maternal and child healthcare	19	20
Accessible pharmacies and medication	27	28
Health education and awareness programs	6	6
Total	**97**	**100**

Source: Field Survey, 2023

Table 2 shows that 35% of the respondents said the healthcare service they believe are lacking in their community is primary care physicians, 28% of them said accessible pharmacies and medication, 20% of them said maternal and child healthcare, 11% of them said emergency medical services while 6% of them said health education and awareness programs.

Figure 2: Major Barriers to Accessing Healthcare Services in Rural Communities



Source: Field Survey, 2023

Figure 2 shows that financial constraints is a major barrier to accessing healthcare services in rural communities in the area having 40%, 22% of them said long distance to healthcare facilities and inadequate infrastructure respectively, 10% of them said shortage of healthcare professionals while 6% of them said limited transportation options.

Factors Contributing to Limited Healthcare Access and Disparities in Rural Communities

This section looks at the factors contributing to limited healthcare access and disparities in rural communities in the area

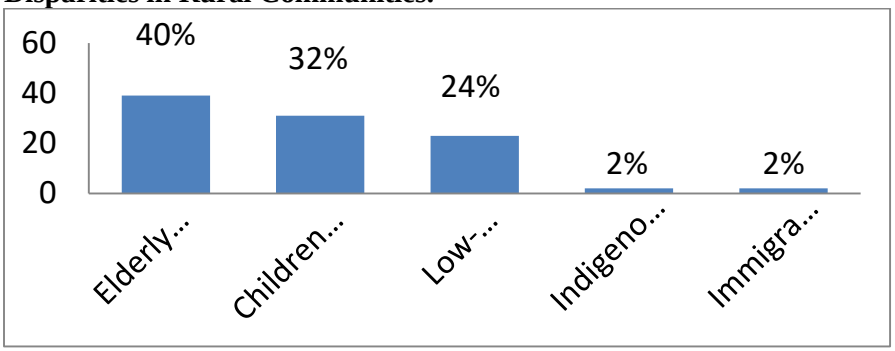
Table 3: Major Factors Contributing to Limited Healthcare Access in Rural Communities

Variable	Frequency	Percentage (%)
Shortage of healthcare professionals	9	9
Limited availability of healthcare facilities	41	42
High healthcare costs and lack of insurance coverage	31	32
Geographical isolation and long distances to healthcare facilities	14	14
Lack of health education and awareness	2	3
Total	97	100

Source: Field Survey, 2023

Table 3 shows that 42% of the respondents said that limited availability of healthcare facilities are the major factors contributing to limited healthcare access in their area, 32% of them said high healthcare costs and lack of insurance coverage, 14% of them said geographical isolation and long distances to healthcare facilities, 9% of them said shortage of healthcare professionals while 3% of them said lack of health education and awareness.

Figure 3: Population Groups that are Most Affected by Healthcare Disparities in Rural Communities.



Source: Field Survey, 2023

Figure 3 shows that majority of the elderly population group were the ones mostly affected by healthcare disparities in rural communities having 40%, 32% of them are children and adolescents, 24% of them are low income individuals and families while 2% of them are indigenous communities and immigrant populations respectively.

Impact of Limited Healthcare Access on Health Outcomes and Healthcare Utilization in Rural Communities

This section looks at the impact of limited healthcare access on health outcomes and healthcare utilization in rural communities

Table 4: Health Outcomes That Are Most Affected By Limited Healthcare Access in Rural Communities

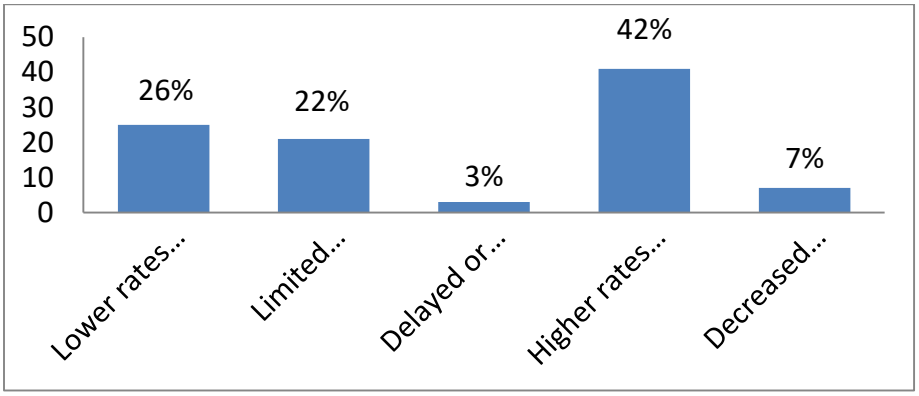
Variable	Frequency	Percentage (%)
Increased prevalence of chronic diseases	21	22
Higher mortality rates	2	2
Delayed or inadequate diagnosis of health conditions	37	38
Poor management of existing health conditions	31	32
Lower life expectancy	6	6
Total	97	100

Source: Field Survey, 2023

Table 4 shows that 38% of the respondents said the health outcomes that are most affected by limited healthcare access in rural communities are delayed or inadequate diagnosis of health conditions, 32% of them said poor

management of existing health conditions, 22% of them said increased prevalence of chronic diseases, 6% of them said lower life expectancy while 2% of them said higher mortality rates.

Figure 4: Healthcare Utilization Patterns that are Most Affected by Limited Healthcare Access in Rural Communities.



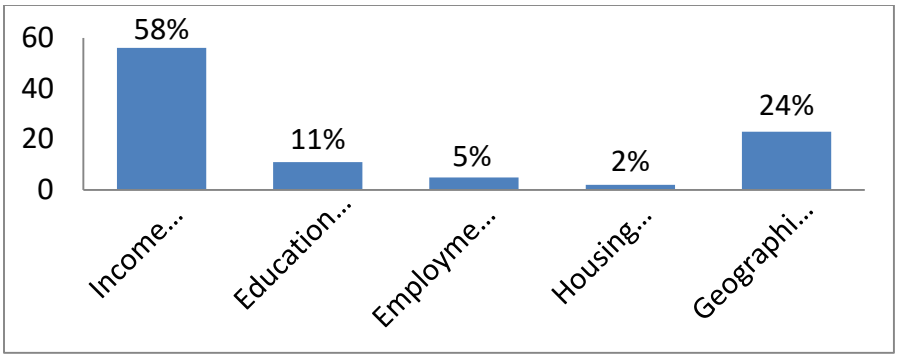
Source: Field Survey, 2023

Figure 4 shows that 42% of the respondents said that higher rates of self-medication or home remedies due to limited access is the healthcare utilization patterns that are most affected by limited healthcare access in rural communities, 26% of them said lower rates of regular check-ups and preventive care visits, 22% of them said limited access to speciality care services and treatments, 7% of them said decreased adherence to medication and treatment plans while 3% of them said delayed or postponed medical appointments or treatments.

Implications of Socioeconomic Disparities on Healthcare Access, Utilization, and Health Outcomes

This section shows the implications of socioeconomic disparities on healthcare access, utilization, and health outcomes

Figure 5: Socioeconomic Factors Believed to have the Greatest Impact on Healthcare Access



Source: Field Survey, 2023

Figure 5 shows that 58% of the respondents said that income level and poverty are the major socioeconomic factors believed to have the greatest impact on healthcare access, 24% of them said geographic location (rural/urban divide), 11% of them said educational attainment, 5% of them said employment and job stability while 2% of them said housing stability.

Table 5: Initiatives believed would help Mitigate the Impact of Socioeconomic Disparities on Healthcare Access, Utilization, and Health Outcomes.

Variable	Frequency	Percentage (%)
Affordable and accessible healthcare services	36	37
Improved health insurance coverage and affordability	21	22
Expanded social support programs addressing socioeconomic factors	17	18
Strengthened collaboration between healthcare providers and community organizations	9	9
Policy changes addressing socioeconomic disparities in healthcare	14	14
Total	97	100

Source: Field Survey, 2023

Table 5 shows that 37% of the respondents said that affordable and accessible healthcare services are initiatives they believed would help mitigate the impact of socioeconomic disparities on healthcare access, utilization and health outcomes, 22% of them said improved health

insurance coverage and affordability, 18% of them said expanded social support programs addressing socioeconomic factors, 14% of them said that policy changes addressing socioeconomic disparities in healthcare while 9% of them said strengthened collaboration between healthcare providers and community organizations are initiatives believed would help mitigate the impact of socioeconomic disparities on healthcare access, utilization and health outcomes.

Table 6: Ways to Implementing and Sustaining Interventions to improve healthcare Access and Outcomes in Rural Communities

Variable	Frequency	Percentage (%)
Increase funding for healthcare infrastructure and services	29	30
Employ more healthcare professionals willing to work in rural areas	31	32
Providing more technological telemedicine services	19	20
Community engagement and support	7	7
Policy changes addressing disparities in healthcare	11	11
Total	97	100

Source: Field Survey, 2023

Table 6 shows that 32% of the respondents said that ways to implementing and sustaining interventions to improve healthcare access and outcomes in rural communities is through employing more healthcare professionals willing to work in rural areas, 30% of them said increase funding for healthcare infrastructure and services, 20% of them said providing more technological telemedicine services, 11% of them said policy changes addressing disparities in healthcare while 7% of them said community engagement and support is way of implementing and sustaining interventions to improve healthcare access and outcomes in rural communities.

Finding shows that the healthcare services believed are lacking in the area are primary care physicians and accessible pharmacies and medication. Finding shows that financial constraints as well as shortage of healthcare professionals are major barrier to accessing healthcare services in rural communities in the area.

Factors Contributing to Limited Healthcare Access and Disparities in Rural Communities

This section looks at the factors contributing to limited healthcare access and disparities in rural communities in the area. The study discovered that limited availability of healthcare facilities are the major factors contributing to limited healthcare access in their area and high healthcare costs and lack of insurance coverage. It also discovered that the elderly population and children were the population groups that are most affected by healthcare disparities in the area.

Finding shows that health outcomes that are most affected by limited healthcare access in rural communities are delayed or inadequate diagnosis of health conditions and there is higher rates of self-medication or home remedies due to limited access to healthcare utilization patterns.

Income level and poverty are the major socioeconomic factors believed to have the greatest impact on healthcare accessibility in the area. Affordable and accessible healthcare services are initiatives that would help mitigate the impact of socioeconomic disparities on healthcare access, utilization and health outcomes in the area as discovered by the study.

Conclusion and Recommendations

The study concludes that policymakers should prioritize rural healthcare and allocate adequate funding for infrastructure development, provider recruitment, and healthcare initiatives. Policy changes, such as reimbursement reforms and expanding Medicaid eligibility, can also enhance access to care in rural areas. Finally, the study concludes that, improving healthcare access and outcomes in rural communities requires a multi-faceted approach involving technology, workforce strategies, community engagement, collaborations, and policy support. By implementing these strategies, it is possible to mitigate health challenges, reduce disparities, and ensure that rural residents receive equitable, high-quality healthcare services. From the findings of this research and the conclusions drawn, the following recommendations are made: governments, healthcare organizations, and policymakers should invest in and expand telehealth services in rural areas. This includes providing necessary infrastructure, training healthcare providers on telemedicine technologies, and ensuring reliable internet connectivity, implement and support community-based healthcare programs that focus on preventive care, health education, and early intervention, upgrading existing infrastructure and ensuring the availability of essential medical equipment and technology will enhance the quality and accessibility of healthcare services, encourage collaboration and partnerships between healthcare organizations,

community groups, government agencies, and academic institutions, and policymakers should also consider expanding Medicaid eligibility and developing targeted programs to address rural health disparities.

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