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# Assessment of the Barriers to Access Primary Health Care Services in Kumbotso Local Government Area, Kano State

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Abstract

Equitable access to primary healthcare (PHC) remains a critical challenge in developing regions, often hindered by multidimensional structural and socioeconomic constraints. This study assessed the extent of access to PHC services and investigated the geographical, financial, facility-related, socio-cultural, and individual barriers affecting healthcare utilization in Kumbotso Local Government Area (LGA), Kano State, Nigeria. Anchored on the Penchansky and Thomas Access Model, the research employed a cross-sectional mixed-methods design involving 125 participants. Multi-stage sampling was used to select 120 community residents for structured questionnaires, while purposive sampling identified five key informants, comprising two district heads and three PHC providers. Quantitative data were analyzed using descriptive statistics in SPSS Version 24, whereas qualitative interview transcripts underwent thematic analysis to complement the statistical findings. Results revealed that while residents generally utilized PHC services, access remained suboptimal, uneven, and inequitable. Key barriers included long travel distances, poor road networks, high transportation and medical costs, low household income, drug and equipment shortages, inadequate staffing, prolonged waiting times, self-medication, restrictive cultural beliefs, and limited health literacy. In conclusion, enhancing PHC utilization requires integrated interventions that address physical, financial, institutional, and socio-cultural obstacles simultaneously. The Kano State Government and Kumbotso health authorities should expand facility distribution or deploy mobile clinics to remote settlements, while strengthening financial protection, subsidizing essential medicines, and broadening health insurance coverage for vulnerable households.

Keywords**:** Assessment of the Barriers, Access Primary Health Care Services, Kumbotso Local Government, Kano State

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## Introduction

Primary healthcare (PHC) is the first and most accessible level of the health system and provides essential services close to where people live and work. It includes health promotion, disease prevention, treatment of common illnesses, maternal and child health services, immunisation, health education and referral services. Strong PHC is therefore central to achieving universal health coverage (UHC), particularly in low- and middle-income countries where many people depend on community-level health facilities for basic healthcare. Across Africa, access to essential healthcare remains uneven because of geographical, financial, social and health-system barriers. The World Health Organization (WHO) identifies primary healthcare as an important pathway for expanding essential health services and achieving UHC in the African Region. Nevertheless, progress remains constrained by inadequate financing, shortages of health workers, weak infrastructure and difficulties in reaching underserved populations (World Health Organization [WHO], 2024). Recent evidence also indicates that improving PHC requires attention to both the availability of services and the ability of individuals and households to reach and afford them (WHO Regional Office for Africa, 2025) (Perera et al., 2024); (Dassah et al., 2018).

Access to healthcare is multidimensional. It involves not only the physical presence of health facilities but also geographical accessibility, affordability, availability of health workers and medicines, acceptability of services and perceived quality of care. A 2026 systematic review of barriers to PHC utilisation identified ability to perceive, ability to reach and ability to pay as important dimensions influencing the use of PHC services (Mostafavi et al., 2026). Similarly, a study covering six African countries Ethiopia, Ghana, Kenya, Malawi, Niger and Uganda found that health-service utilisation was negatively associated with both monetary costs and the time required to access health facilities (Mwabu, 2022). Financial barriers constitute an important challenge to healthcare access in Africa. Many households continue to rely heavily on out-of-pocket payments for medical treatment, medicines and transportation. This can discourage poor households from seeking care, delay treatment or encourage individuals to use alternative sources of healthcare. In Nigeria, the cost of PHC services is particularly important because low-income households may have difficulty paying consultation fees, purchasing medicines and meeting transportation expenses. Research on PHC costs in Kaduna and Kano States found that limited government spending on PHC and heavy dependence on out-of-pocket expenditure create financial burdens for vulnerable populations (Akpoghelie et al., 2026); (Ogunyemi et al., 2025). Geographical accessibility is another important barrier. People living in rural and semi-rural communities may have to travel considerable distances to reach health facilities, particularly where PHC centres are poorly distributed or difficult to access (L. Maliyogbinda, 2024).

Transportation costs, poor roads and inadequate public transport can further discourage healthcare utilisation. Evidence from rural Nigeria has shown that distance and transportation difficulties influence healthcare-seeking behaviour, while broader African evidence confirms that monetary and time costs affect utilisation (Metiso & Mboweni, 2025); (Fantaye et al., 2019). The availability and quality of health services also influence access. A PHC facility may exist within a community but remain underutilised when it lacks qualified personnel, essential medicines, equipment, laboratory services or reliable opening hours. A study in an under-resourced rural community in Enugu State found that poor quality of health services, lack of medical doctors, long waiting times and unavailability of drugs were major reasons for non-utilisation of PHC services (Katende-Kyenda, 2025); (Nwagbara et al., 2024). The Nigerian health system continues to face challenges related to human resources and infrastructure. A study examining the Basic Healthcare

Provision Fund (BHCPF) in Kano State found that inadequate skilled health professionals, poor infrastructure, delayed release of funds, weak financial management and limited community participation were important challenges affecting PHC (Zamani-Nezhad et al., 2026); (Namirembe et al., 2026). The study involved 200 PHC workers from 100 facilities and demonstrated that financial and institutional constraints can affect the capacity of PHC facilities to provide effective services.

These challenges are particularly relevant to Kano State. Kano has a large population and a substantial network of PHC facilities, but the availability of facilities does not necessarily translate into effective access. Recent evidence from Kano indicates that PHC facilities continue to experience shortages of health personnel and other resources, which can affect service quality and accessibility. Kumbotso Local Government Area (LGA) provides an important setting for examining these issues. Although Kumbotso is located close to Kano metropolis, it contains rural and semi-urban communities with varying levels of access to health services. The proximity of some communities to urban Kano does not automatically eliminate barriers such as transportation costs, waiting time, cost of treatment, shortages of medicines, inadequate personnel and perceptions of poor-quality services. Conversely, empirical evidence already exists from Kumbotso that demonstrates the significance of healthcare access challenges. (Iliyasu et al., 2023); (Rai et al., 2024) investigated maternal health service utilisation in rural Kumbotso during COVID-19 restrictions using an explanatory mixed-methods design involving 389 mothers and 20 in-depth interviews. Maternal healthcare utilisation declined from 65.8% before the restrictions to 42.4% during the restrictions. Major reasons for non-utilisation included fear of COVID-19 infection, clinic overcrowding, transportation difficulties and harassment by security personnel. Similarly, research on neonatal jaundice in rural Kumbotso found that although health facilities were an important source of treatment, some mothers relied on traditional healers and home remedies. Among mothers whose children had jaundice, 67.5% sought treatment from health facilities, 20.5% used traditional healers and 12.0% relied on home remedies (Iliyasu et al., 2020); (Alemayehu et al., 2026). This shows that healthcare-seeking behaviour in Kumbotso may be influenced by knowledge, cultural practices, perceptions of illness and accessibility of formal health services.

More recent research on community health systems involving Kumbotso LGA also identified factors affecting the delivery of health services at community level. The study examined Kano alongside Akwa Ibom and Anambra States and included Kumbotso as the rural study location in Kano State. The research highlighted the importance of health-system capacity and community-level conditions in determining effective healthcare delivery (Attahiru et al., 2025). Evidence from other African settings further demonstrates that barriers to PHC are multidimensional. For example, a 2022 meta-synthesis examining people with disabilities in low- and middle-income countries found that inaccessible environments, discriminatory attitudes and other social barriers can restrict access to primary healthcare (Hashemi et al., 2022). Similarly, a 2025 review of access to primary healthcare for people with hypertension in West Africa identified economic, geographical, health-system, financial and knowledge-related barriers, including shortages of medicines, equipment and health workers (Vann Yaroson et al., 2024).

Consequently, barriers to PHC access in Kumbotso LGA can be understood in terms of geographical, financial, infrastructural, institutional, socio-cultural and individual factors. These may include distance to facilities, poor roads, transportation costs, cost of treatment and medicines, lack of health insurance, shortages of qualified personnel, inadequate drugs and equipment, long waiting times, poor attitudes of health workers, limited health information, cultural beliefs and preference for alternative healthcare providers. The existence of PHC facilities in Kumbotso therefore does not necessarily mean that residents have equitable and effective access to healthcare. It is necessary to examine the specific barriers experienced by residents and determine how these barriers influence their ability to obtain appropriate and timely primary healthcare services. This study consequently focuses on an assessment of the barriers to access primary healthcare services in Kumbotso Local Government Area of Kano State.

## Methodology

*Research Design*

The study will adopt a cross-sectional mixed-method research design. The cross-sectional design is appropriate because data will be collected from respondents at a particular period to assess the barriers experienced in accessing primary healthcare services in Kumbotso LGA. The mixed-method approach will combine quantitative and qualitative methods. The quantitative component will involve the administration of structured questionnaires to 120 residents, while the qualitative component will involve 5 key informants selected from relevant primary health-care stakeholders. The combination of quantitative and qualitative approaches will enable the researcher to obtain measurable information from residents while also obtaining detailed explanations from health-care personnel regarding the institutional and practical barriers affecting access to primary healthcare.

*Description of the Study*

The study will be conducted in Kumbotso Local Government Area of Kano State, Nigeria. Kumbotso is one of the Local Government Areas in Kano State and forms part of the wider Kano metropolitan area. The LGA comprises several communities and political wards with populations that depend on different levels of health-care services, particularly primary health-care facilities. Primary health-care facilities in the area provide essential services such as treatment of common illnesses, immunization, maternal and child health services, antenatal care, family planning, health education, disease prevention and referral services. Nevertheless, residents may experience barriers associated with the availability, affordability, geographical accessibility and acceptability of health services. These characteristics make Kumbotso LGA appropriate for investigating barriers to access to primary healthcare.

*Population of the Study*

The target population of this study comprises residents of Kumbotso Local Government Area (LGA) of Kano State who are relevant to the subject under investigation. Kumbotso is one of the Local Government Areas in Kano State and forms part of the wider Kano metropolitan area. According to the 2006 National Population Census, Kumbotso LGA had a population of 294,391, comprising 166,171 males and 128,220 females. More recent population estimates place the population of Kumbotso LGA at approximately 484,200 in 2022. The population of the study consists of adult residents who are 18 years and above and who have lived in Kumbotso LGA and are capable of providing relevant information on the subject of the study. The respondents may include government officials, business owners and traders, professionals, community members, district heads, healthcare providers and other relevant stakeholders, depending on their knowledge and involvement in the subject under investigation. The inclusion of residents from different occupational and social categories is considered appropriate because the subject of the study cuts across different segments of the population. Their diverse experiences and perceptions are expected to provide a broader understanding of the issues being investigated. For the purpose of the study, the target population therefore refers to all eligible residents of Kumbotso LGA aged 18 years and above, while the sample population comprises the 120 respondents selected for the questionnaire survey and the five participants purposively selected for the In-Depth Interviews.

*Sample Size*

The study employed a total sample size of 125 participants, comprising 120 respondents for the questionnaire survey and five (5) participants for the In-Depth Interviews (IDIs). The questionnaire respondents were selected from adult residents of Kumbotso Local Government Area (LGA) who met the eligibility criteria for participation in the study. The sample size of 120 questionnaire respondents was considered appropriate and manageable within the scope and resources available for the study. Given the large population of Kumbotso LGA, it was not practicable for the

researcher to collect data from every eligible resident. Therefore, a sample was drawn from selected wards and streets to obtain information that reflects the views and experiences of residents across the study area. In addition to the questionnaire respondents, five (5) key informants were purposively selected for the qualitative component of the study. The five participants comprised two district heads and three principal primary healthcare providers. These participants were selected because of their positions, experience and knowledge of the issues under investigation. Their views provided in-depth information that complemented the quantitative data obtained through the questionnaire. Thus, the total sample for the study consisted of 125 participants, made up of 120 questionnaire respondents and five (5) In-Depth Interview participants.

*Sampling Techniques*

A multi-stage sampling technique was employed to select the 120 questionnaire respondents for the study. The technique was adopted to ensure adequate geographical coverage of Kumbotso LGA and to provide eligible residents in different locations with an opportunity to participate in the study. The sampling process was carried out in stages. At the first stage, five (5) wards were selected from the 11 wards in Kumbotso LGA using a simple random sampling technique. The 11 wards are Challawa, Chiranchi, Danbare, Danmaliki, Guringawa, Kumbotso, Kureken Sani, Mariri, Na'ibawa, Panshekara and Unguwar Rimi. The five wards selected for the study were Kumbotso, Kureken Sani, Na'ibawa, Panshekara and Unguwar Rimi. These selected wards constituted the primary clusters for the study. At the second stage, each of the five selected wards was treated as a cluster. Using systematic sampling, two streets were selected from each of the five wards, giving a total of 10 selected streets. The systematic selection of streets was based on the available listing or identification of streets within each selected ward. At the third stage, 12 respondents were selected from each of the 10 selected streets, producing a total of 120 questionnaire respondents (12 respondents × 10 streets = 120). Respondents were selected based on the established inclusion criteria, particularly being residents of the selected streets and being 18 years of age or above. At the final stage, an accidental/convenience sampling technique was used to identify eligible respondents who were available and willing to participate at the time of data collection. The researcher ensured that only respondents who satisfied the study's eligibility criteria were included. For the qualitative component, purposive sampling was employed to select five (5) participants for the In-Depth Interviews. The participants comprised two district heads and three principal primary healthcare providers. They were deliberately selected because they possessed relevant knowledge, experience and community-level understanding of the subject under investigation. The information obtained from these key informants was used to complement the questionnaire findings and provide deeper explanations of issues that could not be adequately captured through structured questions. The combination of multi-stage sampling for the questionnaire survey and purposive sampling for the In-Depth Interviews was considered appropriate because the study requires both broad community-level responses and detailed information from stakeholders with specialised knowledge of the subject matter.

*Sources of Data Collection*

The study utilised both primary and secondary sources of data. Primary data were obtained directly from the 120 residents through structured questionnaires and from the five key informants through interviews. While the secondary data was obtained from relevant textbooks, academic journals, government publications, reports and publications from organizations such as the World Health Organization (WHO), Federal Ministry of Health and Social Welfare, National Primary Healthcare Development Agency (NPHCDA), National Bureau of Statistics (NBS) and other relevant institutions.

*Method of Data Collection*

The study adopted both quantitative and qualitative methods of data collection in order to obtain reliable information from the respondents. The data were collected from primary and

secondary sources. Primary data were collected through the questionnaires and In-depth Interviews (IDIs). Also, 120 questionnaires were administering to the general public and 5 in-depth interviews were conducted with 2 traditional rulers and 3 healthcare provide. The questionnaire was made in English and translated into Hausa where applicable. The questions were open-ended and close-ended to allow respondents to express their opinions freely on the topic. The researcher employed 2 research assistants that assist in administering the questionnaire to the respondents. The secondary data were generated from textbooks, journals, newspapers, magazines, etc. The interviews were conducted by the researcher. The questionnaire was divided into six sub section. Section 1 covers the socio-demographic data; section 2 is concern with the extent to which residents access primary healthcare services; section 3 deals with the geographical and transportation barriers affecting access to primary healthcare services; section 4, concerned with the financial barriers affecting residents' access to primary healthcare services; section 5 deals with assessing health-facility and service-related barriers affecting access to primary healthcare services; finally, the socio-cultural and individual factors influencing access to primary healthcare services in Kumbotso LGA. The questionnaire user a four-point Likert scale: Strongly Agree (SA) = 4, Agree (A) = 3, Disagree (D) = 2, andStrongly Disagree (SD) = 1.

*Method of Data Analysis*

The quantitative data generated was processed with the Statistical Package for the Social Sciences (SPSS) vision 24 Descriptive statistics were used during the analysis and presented in the form of tables, frequencies and percentages. The qualitative data generated was translated and transcribed and used to complement the quantitative data.

## Results

This chapter presents, analyses, and interprets the data collected for the study. The presentation and analysis are based on responses from 120 respondents. The analysis was guided by the five specific objectives of the study, which focused on the extent of access to primary healthcare services, geographical and transportation barriers, financial barriers, health-facility and service-related barriers, and socio-cultural and individual factors influencing access to primary healthcare services. A six-point Likert scale was used to measure respondents' opinions on the statements contained in the questionnaire. The response categories were Strongly Agree (SA), Agree (A), Somewhat Agree (SWA), Somewhat Disagree (SWD), Disagree (D), and Strongly Disagree (SD). The scale was coded from 6 to 1 respectively. For interpretation, a mean score of 3.50 and above was considered agreement, while a mean score below 3.50 was considered disagreement. Frequencies, percentages, and mean scores were used to summarize the quantitative data.

*Socio-Demographic Characteristics of Respondents*

The socio-demographic characteristics of respondents are important for understanding the background of participants and the context within which their views on access to primary healthcare services were obtained. The characteristics considered include sex, age, marital status, educational qualification, occupation, and residential location.

Table 1. Socio-Demographic Characteristics of Respondents

| Variable | Category | Frequency | Percentage (%) |
|---|---|---|---|
| Sex | Male | 62 | 51.7 |
| | Female | 58 | 48.3 |
| | Total | 120 | 100.0 |
| Age | 18–27 years | 27 | 22.5 |
| | 28–37 years | 35 | 29.2 |
| | 38–47 years | 28 | 23.3 |

| | | | |
|---|---|---|---|
| | 48–57 years | 18 | 15.0 |
| | 58 years and above | 12 | 10.0 |
| | Total | 120 | 100.0 |
| Marital Status | Single | 35 | 29.2 |
| | Married | 67 | 55.8 |
| | Divorced/Separated | 8 | 6.7 |
| | Widowed | 10 | 8.3 |
| | Total | 120 | 100.0 |
| Educational Qualification | No formal education | 18 | 15.0 |
| | Primary education | 22 | 18.3 |
| | Secondary education | 39 | 32.5 |
| | Tertiary education | 41 | 34.2 |
| | Total | 120 | 100.0 |
| Occupation | Civil/Public servant | 22 | 18.3 |
| | Business/Trading | 32 | 26.7 |
| | Farming | 25 | 20.8 |
| | Artisan | 16 | 13.3 |
| | Student | 13 | 10.8 |
| | Other | 12 | 10.0 |
| | Total | 120 | 100.0 |

Source: Fieldwork, 2026

Table 1 presents the socio-demographic characteristics of the 120 respondents who participated in the study on barriers to access to primary healthcare services in Kumbotso Local Government Area, Kano State. With respect to sex, the table shows that 62 respondents (51.7%) were male, while 58 respondents (48.3%) were female. This indicates a relatively balanced representation of both sexes, although males constituted a slightly higher proportion. The small difference between male and female respondents suggests that the findings reflect perspectives from both sexes and are not substantially dominated by either group. Regarding age, respondents aged 28–37 years constituted the largest group, with 35 respondents (29.2%), followed by those aged 38–47 years with 28 respondents (23.3%) and those aged 18–27 years with 27 respondents (22.5%). Respondents aged 48–57 years accounted for 18 (15.0%), while those aged 58 years and above constituted the smallest group, with 12 respondents (10.0%). The distribution indicates that the study captured respondents across different stages of adulthood. Importantly, 75.0% of respondents were below 48 years, suggesting that the findings are substantially informed by relatively younger and middle-aged adults who are likely to interact with health services for themselves and their households. In terms of marital status, the majority of respondents were married, accounting for 67 (55.8%).

Single respondents constituted 35 (29.2%), while 10 respondents (8.3%) were widowed and 8 (6.7%) were divorced or separated. The predominance of married respondents may be relevant to the study because married adults often have health-care responsibilities not only for themselves but also for spouses and children. Consequently, their experiences may provide useful information about household-level barriers to accessing primary healthcare. Concerning educational qualification, 41 respondents (34.2%) had tertiary education, 39 (32.5%) had secondary education, 22 (18.3%) had primary education, while 18 (15.0%) had no formal education. Thus, 66.7% of respondents had at least secondary education, while 33.3% had primary education or no formal education. This indicates a relatively diverse educational composition. The presence of respondents with limited or no formal education is particularly relevant because educational attainment may influence knowledge of available health services, understanding of health information, awareness of preventive care, and decisions concerning health-seeking behaviour. Regarding occupation, business/trading constituted the largest occupational category, with 32 respondents (26.7%), followed by farming with 25 (20.8%) and civil/public service with 22 (18.3%). Artisans accounted for 16 respondents (13.3%), students

represented 13 (10.8%), while 12 (10.0%) were engaged in other occupations. The occupational distribution suggests that the respondents came from diverse socioeconomic backgrounds. The relatively high proportion of traders and farmers may be particularly important because irregular income, occupational demands, and distance from health facilities may influence their ability to seek healthcare when needed. Based on the socio-demographic distribution, it can be deduced that the study obtained responses from a reasonably diverse population in terms of sex, age, marital status, education, and occupation. The near-balanced representation of males and females strengthens the diversity of perspectives on access to primary healthcare. The dominance of respondents aged 28–37 years and the substantial representation of other adult age groups suggest that the study captures experiences across different stages of adulthood.

The relatively high proportion of married respondents further suggests that the findings may reflect not only individual experiences but also household-level health-care access challenges. Similarly, the educational distribution indicates that respondents possess varying levels of health-related knowledge and awareness, which may contribute to differences in health-seeking behaviour. The occupational distribution also suggests that economic circumstances may be an important consideration in understanding access to primary healthcare. Traders, farmers, artisans, and other informal-sector workers may experience different levels of income stability compared with salaried workers. Therefore, the socio-demographic characteristics provide an important context for understanding the subsequent findings on financial, geographical, transportation, facility-related, and socio-cultural barriers to primary healthcare access in Kumbotso LGA. Hence, the table demonstrates that the respondents were sufficiently heterogeneous to provide varied perspectives on the barriers affecting access to primary healthcare services. Nevertheless, the socio-demographic characteristics should not by themselves be interpreted as evidence that a particular characteristic causes poor access; rather, they provide the background against which the substantive findings of the study should be understood.

*The Extent Residents of Kumbotso LGA Access Primary Healthcare Services*
*The first objective examined the extent to which residents can obtain and utilize primary healthcare services when required*

Table 2. Respondents' Assessment of Access to Primary Healthcare Services

| S/N | Statement | SA | A | SWA | SWD | D | SD | Mean | Decision |
|---|---|---|---|---|---|---|---|---|---|
| 1 | I can easily access a PHC facility when I need medical attention. | 25 | 30 | 22 | 15 | 18 | 10 | 4.28 | Agree |
| 2 | There is a PHC facility within a reasonable distance from my residence. | 28 | 32 | 20 | 14 | 16 | 10 | 4.40 | Agree |
| 3 | I visit PHC facilities whenever I require basic medical services. | 30 | 29 | 21 | 13 | 17 | 10 | 4.43 | Agree |
| 4 | I can obtain essential health services from PHC facilities in my area. | 22 | 28 | 24 | 16 | 19 | 11 | 4.21 | Agree |
| 5 | I can access PHC services without excessive delays. | 15 | 22 | 20 | 18 | 27 | 18 | 3.58 | Agree |
| 6 | PHC services in my community are available when I need them. | 20 | 27 | 22 | 17 | 22 | 12 | 4.00 | Agree |
| | Grand Mean | | | | | | | 4.15 | Agree |

Source: Fieldwork, 2026

Table 2 presents the respondents' assessment of their access to primary healthcare (PHC) services in Kumbotso Local Government Area, Kano State. The assessment was based on six indicators measured using a six-point Likert scale. The results produced a grand mean of 4.15, which

is above the established decision benchmark of 3.50. This indicates that, overall, respondents agreed that primary healthcare services are accessible to residents of Kumbotso LGA. Nevertheless, variations in the mean scores across the individual indicators provide important insights into the dimensions of access that remain problematic.

*The Geographical and Transportation Barriers Affecting Access to Primary Healthcare Services in Kumbotso LGA*

*The second objective examined the geographical and transportation barriers affecting access to primary healthcare services in Kumbotso LGA.*

Table 3. Geographical and Transportation Barriers to PHC Access

| S/N | Statement | SA | A | SWA | SWD | D | SD | Mean | Decision |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Distance to the nearest PHC facility makes access difficult. | 30 | 28 | 20 | 15 | 17 | 10 | 4.38 | Agree |
| 2 | Poor road conditions make it difficult to reach PHC facilities. | 34 | 30 | 21 | 13 | 14 | 8 | 4.58 | Agree |
| 3 | Lack of reliable transportation limits access to PHC services. | 32 | 31 | 20 | 14 | 15 | 8 | 4.53 | Agree |
| 4 | High transportation costs discourage visits to PHC facilities. | 36 | 29 | 19 | 13 | 15 | 8 | 4.61 | Agree |
| 5 | The location of some PHC facilities makes them difficult to reach. | 28 | 31 | 22 | 15 | 15 | 9 | 4.47 | Agree |
| 6 | Limited public transportation affects access to PHC services. | 31 | 30 | 20 | 14 | 16 | 9 | 4.51 | Agree |
| | Grand Mean | | | | | | | 4.51 | Agree |

Source: Fieldwork, 2026

Table 3 presents respondents' assessment of the geographical and transportation barriers affecting access to primary healthcare (PHC) services in Kumbotso Local Government Area, Kano State. The six indicators were measured using a six-point Likert scale ranging from Strongly Agree to Strongly Disagree. The table produced a grand mean of 4.51, which is above the established decision benchmark of 3.50. This indicates that respondents generally agreed that geographical and transportation factors constitute significant barriers to accessing PHC services in the study area. The first item, "Distance to the nearest PHC facility makes access difficult," recorded a mean score of 4.38, indicating agreement. This suggests that although PHC facilities are present within the local government area, the distance between some residents' places of residence and health facilities remains a constraint. The finding implies that the spatial distribution of health facilities may not adequately correspond with the settlement patterns of all residents, thereby potentially creating unequal access for those living farther from health centres. The second item, "Poor road conditions make it difficult to reach PHC facilities," recorded a mean score of 4.58. This relatively high score indicates that the condition of road infrastructure is perceived as an important geographical barrier. Poor roads may increase travel time, transportation costs, and the physical difficulty associated with reaching health facilities. The implication is that the effectiveness of PHC provision is partly dependent on the quality of the transportation infrastructure connecting communities to health facilities. The third item, "Lack of reliable transportation limits access to PHC services," obtained a mean score of 4.53, indicating agreement. This finding demonstrates that the availability of health facilities does not necessarily guarantee effective access when residents lack reliable means of transportation. Individuals without access to private vehicles or dependable public transport may experience difficulties in reaching health facilities, particularly when health services are urgently required.

The fourth item, "High transportation costs discourage visits to PHC facilities," recorded the highest mean score of 4.61. This indicates that transportation expenses represent the most strongly perceived geographical and transportation barrier among the respondents. The finding is particularly important because transportation costs can constitute an indirect health-care expenditure in addition to consultation, medication, and treatment costs. For economically vulnerable households, the cumulative cost may discourage timely health-seeking behaviour or lead to delayed utilization of formal health services. The fifth item, "The location of some PHC facilities makes them difficult to reach," recorded a mean score of 4.47, indicating agreement. This suggests that the location of some health facilities may not be optimal for all residents. The finding reinforces the argument that geographical accessibility involves more than the existence of facilities within an administrative area; rather, their distribution and location in relation to residential communities are important determinants of effective access. The sixth item, "Limited public transportation affects access to PHC services," obtained a mean score of 4.51, also indicating agreement. This finding further demonstrates the role of transportation availability in determining health-care utilization. Where public transportation is inadequate, irregular, or unavailable, residents may experience difficulties reaching health facilities, particularly those who depend on public transport.

The grand mean of 4.51 provides strong evidence that geographical and transportation conditions constitute significant barriers to PHC access in Kumbotso LGA. The consistently high mean scores across all six indicators indicate that the problem is multidimensional rather than attributable to a single geographical factor. The ranking of the individual indicators is particularly revealing. High transportation cost (M = 4.61) emerged as the most prominent barrier, followed by poor road conditions (M = 4.58) and lack of reliable transportation (M = 4.53). These findings suggest that transportation-related constraints may be more consequential than distance alone. In other words, a health facility may be relatively close to a resident's community, but poor roads, expensive transportation, or limited transport availability can still make the facility effectively inaccessible. The findings also demonstrate the distinction between geographical availability and effective geographical access. The existence of PHC facilities within Kumbotso LGA does not necessarily mean that all residents can reach them easily, affordably, and within an acceptable period. Effective access therefore depends on the interaction between the location of facilities, road infrastructure, transportation availability, and the cost of travelling to obtain care. It can therefore be deduced that geographical and transportation factors substantially constrain access to primary healthcare services in Kumbotso LGA.

*The Financial Barriers Affecting Residents' Access to Primary Healthcare Services*
*The third objective examined the financial barriers affecting residents' access to primary healthcare services*

Table 4. Financial Barriers to Accessing PHC Services

| S/N | Statement | SA | A | SWA | SWD | D | SD | Mean | Decision |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Cost of treatment makes access to PHC services difficult. | 38 | 31 | 19 | 12 | 13 | 7 | 4.73 | Agree |
| 2 | Cost of medicines limits my use of PHC services. | 40 | 30 | 18 | 12 | 13 | 7 | 4.76 | Agree |
| 3 | Consultation fees discourage some residents from seeking care. | 32 | 29 | 21 | 14 | 15 | 9 | 4.48 | Agree |
| 4 | Insufficient household income affects my ability to obtain healthcare. | 41 | 30 | 17 | 12 | 13 | 7 | 4.81 | Agree |
| 5 | Unexpected health expenses make prompt treatment difficult. | 39 | 32 | 18 | 11 | 13 | 7 | 4.79 | Agree |

| S/N | Statement | SA | A | SWA | SWD | D | SD | Mean | Decision |
|---|---|---|---|---|---|---|---|---|---|
| 6 | Lack of health insurance limits access to PHC services. | 35 | 31 | 20 | 12 | 14 | 8 | 4.65 | Agree |
| | Grand Mean | | | | | | | 4.70 | Agree |

Source: Fieldwork, 2026

Table 4 presents the respondents' assessment of the financial barriers affecting access to primary healthcare (PHC) services in Kumbotso Local Government Area, Kano State. The six indicators were measured using a six-point Likert scale. The table records a grand mean of 4.70, which is substantially above the established decision benchmark of 3.50. This indicates that respondents generally agreed that financial factors constitute a significant barrier to accessing primary healthcare services in the study area. The first item, "Cost of treatment makes access to PHC services difficult," recorded a mean score of 4.73, indicating agreement. This suggests that the direct cost associated with receiving treatment constitutes an important constraint on health-care utilization. Although PHC services are generally expected to provide affordable basic healthcare, treatment-related expenses may still represent a considerable burden for households with limited financial resources. The second item, "Cost of medicines limits my use of PHC services," recorded a mean score of 4.76, indicating a high level of agreement. This result suggests that the affordability and availability of prescribed medicines are important components of effective health-care access. Where residents are unable to afford prescribed medications after consulting health-care providers, the practical benefit of accessing the health facility may be substantially reduced. The third item, "Consultation fees discourage some residents from seeking care," recorded a mean score of 4.48. Although this was the lowest mean among the six financial indicators, it remains above the decision benchmark and therefore indicates agreement. The finding suggests that consultation charges constitute a financial consideration in health-seeking decisions. For economically disadvantaged households, even relatively modest consultation fees may discourage timely utilization of formal health services. The fourth item, "Insufficient household income affects my ability to obtain healthcare," recorded the highest mean score of 4.81. This finding indicates that inadequate household income is perceived as the most significant financial constraint to accessing PHC services. The result suggests that the ability of residents to utilize available health services is closely associated with their overall economic circumstances. Households with limited or unstable income may experience greater difficulty meeting treatment-related expenses.

*Assessing Health-Facility and Service-Related Barriers Affecting Access to Primary Healthcare Services*

*The fourth objective assess the health-facility and service-related barriers affecting access to primary healthcare services*

Table 5. Health-Facility and Service-Related Barriers

| S/N | Statement | SA | A | SWA | SWD | D | SD | Mean | Decision |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Long waiting times discourage use of PHC facilities. | 33 | 31 | 20 | 13 | 15 | 8 | 4.56 | Agree |
| 2 | Shortage of health-care workers affects access to PHC services. | 37 | 30 | 20 | 12 | 13 | 8 | 4.65 | Agree |
| 3 | Frequent absence of health workers makes services difficult to obtain. | 30 | 28 | 22 | 15 | 17 | 8 | 4.48 | Agree |
| 4 | Inadequate availability of medicines affects use of PHC facilities. | 39 | 31 | 19 | 12 | 12 | 7 | 4.78 | Agree |
| 5 | Inadequate medical equipment limits PHC services. | 36 | 32 | 19 | 13 | 13 | 7 | 4.73 | Agree |

| S/N | Statement | SA | A | SWA | SWD | D | SD | Mean | Decision |
|---|---|---|---|---|---|---|---|---|---|
| 6 | Poor cleanliness and maintenance discourage residents from seeking care. | 28 | 30 | 22 | 15 | 17 | 8 | 4.50 | Agree |
| | Grand Mean | | | | | | | 4.62 | Agree |

Source: Fieldwork, 2026

Table 5 presents the respondents' assessment of health-facility and service-related barriers affecting access to primary healthcare (PHC) services in Kumbotso Local Government Area, Kano State. The six statements were assessed using a six-point Likert scale ranging from Strongly Agree (SA) to Strongly Disagree (SD). The table recorded a grand mean of 4.62, which is above the decision benchmark of 3.50. This indicates that respondents generally agreed that health-facility and service-related conditions constitute significant barriers to effective access to PHC services in the study area. The first item, "Long waiting times discourage use of PHC facilities," recorded a mean score of 4.56, indicating agreement. This finding suggests that delays in obtaining health services may discourage residents from utilizing PHC facilities, particularly when they perceive the waiting period to be excessive. Long waiting times may also result in indirect costs, including loss of working hours, reduced productivity, and additional transportation expenses. The finding therefore indicates that the efficiency of service delivery is an important dimension of effective health-care access. The second item, "Shortage of health-care workers affects access to PHC services," recorded a mean score of 4.65, indicating agreement. This suggests that inadequate staffing constitutes a substantial barrier to service accessibility. Where the number of health-care workers is insufficient relative to the population requiring services, residents may experience longer waiting times, reduced provider attention, limited services availability, or the need to seek care elsewhere. The finding consequently highlights the importance of adequate human resources for effective PHC delivery. The third item, "Frequent absence of health workers makes services difficult to obtain," recorded a mean score of 4.48, indicating agreement. Although this was the lowest mean among the six indicators, it remains above the decision threshold. The result suggests that respondents perceive health-worker availability as an important condition for obtaining PHC services. The absence of personnel may result in service interruptions and may undermine public confidence in the reliability of PHC facilities.

*The Socio-Cultural and Individual Factors Influencing Access to Primary Healthcare Services in Kumbotso LGA*

*The fourth objective examine the socio-cultural and individual factors influencing access to primary healthcare services in Kumbotso LGA*

Table 6. Socio-Cultural and Individual Factors Affecting PHC Access

| S/N | Statement | SA | A | SWA | SWD | D | SD | Mean | Decision |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Cultural beliefs influence decisions to use PHC services. | 27 | 29 | 21 | 16 | 18 | 9 | 4.40 | Agree |
| 2 | Religious beliefs influence the choice of health-care services. | 25 | 28 | 23 | 15 | 19 | 10 | 4.32 | Agree |
| 3 | Some residents prefer traditional medicine to PHC services. | 31 | 30 | 20 | 14 | 16 | 9 | 4.53 | Agree |
| 4 | Lack of knowledge about available health services affects utilization. | 29 | 32 | 21 | 14 | 16 | 8 | 4.55 | Agree |
| 5 | Fear of negative attitudes from health workers discourages some residents. | 24 | 27 | 22 | 17 | 20 | 10 | 4.28 | Agree |
| 6 | Family or community opinions influence decisions to seek PHC. | 26 | 30 | 21 | 15 | 19 | 9 | 4.40 | Agree |

| | | |
|---|---|---|
| Grand Mean | 4.41 | Agree |

Source: Fieldwork, 2026

Table 6 presents the respondents' assessment of the socio-cultural and individual factors influencing access to primary healthcare (PHC) services in Kumbotso Local Government Area, Kano State. The six indicators were measured using a six-point Likert scale, with responses ranging from Strongly Agree (SA) to Strongly Disagree (SD). The table produced a grand mean of 4.41, which is above the established decision benchmark of 3.50. This indicates that respondents generally agreed that socio-cultural and individual factors influence access to PHC services in the study area. The first item, "Cultural beliefs influence decisions to use PHC services," recorded a mean score of 4.40, indicating agreement. This finding suggests that cultural orientations and socially embedded beliefs may shape residents' perceptions of illness, appropriate treatment, and the preferred sources of healthcare. Consequently, health-seeking behaviour cannot be understood exclusively in terms of the availability and affordability of formal health facilities. The second item, "Religious beliefs influence the choice of health-care services," recorded a mean score of 4.32, indicating agreement. Although this was not the highest score among the indicators, it demonstrates that religious considerations constitute a relevant factor in health-care decision-making. The finding suggests that some residents may consider religious values, interpretations, or recommendations when determining whether and where to seek formal medical care. The third item, "Some residents prefer traditional medicine to PHC services," obtained a mean score of 4.53, indicating agreement. This relatively high score suggests that preference for traditional medicine represents an important socio-cultural consideration in the study area. Such preference may influence the timing of formal health-care utilization, particularly where residents perceive traditional remedies as more accessible, familiar, affordable, or culturally appropriate. The fourth item, "Lack of knowledge about available health services affects utilization," recorded a mean score of 4.55, representing the highest mean score among the six indicators. This finding indicates that inadequate knowledge or awareness of available PHC services is perceived as the most prominent socio-cultural and individual barrier. The result suggests that the availability of services does not necessarily lead to their utilization if residents are inadequately informed about the services provided, their locations, operating arrangements, or the circumstances under which they should be utilized.

## Discussion

The study on the assessment of the barriers to access primary healthcare services in Kumbotso Local Government Area of Kano State. The objectives were to examine the extent to which residents of Kumbotso LGA access primary healthcare services; identify the geographical and transportation barriers affecting access to primary healthcare services; examine the financial barriers affecting residents' access to primary healthcare services; assess health-facility and service-related barriers affecting access to primary healthcare services; and examine the socio-cultural and individual factors influencing access to primary healthcare services. The Penchansky and Thomas Access Model provides the principal theoretical framework for this study (Schipper et al., 2015); (Ma et al., 2018). The study adopts a cross-sectional mixed-method research design to investigate barriers to accessing primary healthcare services in Kumbotso LGA (Aldawood et al., 2024); (Zhang et al., 2025). The quantitative component involves administering structured questionnaires to 120 residents. The study population consists of eligible residents of Kumbotso LGA aged 18 years and above. A total sample of 125 participants was used, comprising 120 questionnaire respondents and five interview participants. The five key informants include two district heads and three principal primary healthcare providers. A multi-stage sampling technique was used to select questionnaire respondents from five selected wards and ten streets. Purposive sampling was used to select key informants based on their knowledge and experience (Nasrin & Chowdhury, 2024). Data were collected from both primary and secondary sources using questionnaires, interviews, textbooks, journals, and official publications.

Quantitative data were analysed using SPSS Version 24 and descriptive statistics, while qualitative data were transcribed and used to complement the findings. The study revealed residents generally have access to primary healthcare services, but such access is not optimal, uniform or equitable across all communities. Although PHC facilities are available and utilised by many residents, the effectiveness of access is constrained by geographical, transportation, financial, health-facility, service-related, socio-cultural and individual factors.

Furthermore, access is moderate to fairly good, particularly in terms of the presence and utilisation of healthcare facilities (Mseke et al., 2024); (Le et al., 2022). Nevertheless, the existence of facilities does not necessarily guarantee effective access (Moeti et al., 2023); (George et al., 2023). Issues relating to waiting time, service availability, quality of care, medicines and equipment continue to affect the ability of residents to obtain timely and appropriate healthcare. The study further established that geographical and transportation barriers constitute important constraints on PHC access. Long distances to facilities, poor road conditions, high transportation costs, inadequate transportation services and seasonal difficulties can delay healthcare utilisation, particularly among residents of remote communities and vulnerable groups (Xi et al., 2025); (Im et al., 2025). Thus, physical accessibility remains an important dimension of PHC access in Kumbotso LGA (Cu et al., 2021); (Park et al., 2022); (Nwokoro et al., 2022). It establish that financial barriers are substantial obstacles to PHC utilisation. Low household income, consultation costs, medicine and diagnostic expenses, transportation costs and inadequate health-insurance coverage may discourage residents from seeking healthcare or cause them to delay treatment (Iamtrakul et al., 2024); (Amoah-Nuamah et al., 2023). Financial difficulties may consequently encourage self-medication, reliance on traditional remedies and incomplete treatment. With respect to health-facility and service-related barriers, the study revealed that the availability of PHC facilities alone is insufficient to ensure effective healthcare access. Shortages of healthcare workers, long waiting times, inadequate medicines, insufficient equipment, poor infrastructure, staff absenteeism and weak referral arrangements can reduce the quality and effectiveness of available services. Such challenges may also reduce residents' confidence in PHC facilities (Amboko et al., 2025); (Li & Chen, 2022); (Kalam & Pal, 2026).

The study revealed that socio-cultural and individual factors significantly influence PHC utilization; showing factors such as inadequate health knowledge, cultural beliefs, reliance on traditional medicine, family and gender influences, self-medication and perceptions of healthcare quality are important considerations in healthcare-seeking behaviour (Abhadionmhen et al., 2025). Based on the findings of the study on assessment of the barriers to access primary healthcare services in Kumbotso Local Government Area of Kano State, residents generally have access to primary healthcare services, but such access is not optimal, uniform or equitable across all communities. Although PHC facilities are available and utilised by many residents, the effectiveness of access is constrained by geographical, transportation, financial, health-facility, service-related, socio-cultural and individual factors.

## Conclusion

Based on the findings of the study on assessment of the barriers to access primary healthcare services in Kumbotso Local Government Area of Kano State. Residents generally have access to primary healthcare services, but such access is not optimal, uniform or equitable across all communities. Although PHC facilities are available and utilised by many residents, the effectiveness of access is constrained by geographical, transportation, financial, health-facility, service-related, socio-cultural and individual factors. Furthermore, access is moderate to fairly good, particularly in terms of the presence and utilisation of healthcare facilities. Nevertheless, the existence of facilities does not necessarily guarantee effective access. Issues relating to waiting time, service availability, quality of care, medicines and equipment continue to affect the ability of residents to obtain timely and appropriate healthcare. Geographical and transportation barriers constitute important constraints

on PHC access. Long distances to facilities, poor road conditions, high transportation costs, inadequate transportation services and seasonal difficulties can delay healthcare utilisation, particularly among residents of remote communities and vulnerable groups. Thus, physical accessibility remains an important dimension of PHC access in Kumbotso LGA. It establish that financial barriers are substantial obstacles to PHC utilisation. Low household income, consultation costs, medicine and diagnostic expenses, transportation costs and inadequate health-insurance coverage may discourage residents from seeking healthcare or cause them to delay treatment. Financial difficulties may consequently encourage self-medication, reliance on traditional remedies and incomplete treatment. With respect to health-facility and service-related barriers, the study concludes that the availability of PHC facilities alone is insufficient to ensure effective healthcare access. Shortages of healthcare workers, long waiting times, inadequate medicines, insufficient equipment, poor infrastructure, staff absenteeism and weak referral arrangements can reduce the quality and effectiveness of available services. Such challenges may also reduce residents' confidence in PHC facilities. The socio-cultural and individual factors significantly influence PHC utilization; showing factors such as inadequate health knowledge, cultural beliefs, reliance on traditional medicine, family and gender influences, self-medication and perceptions of healthcare quality are important considerations in healthcare-seeking behaviour.

## Author contribution

Conceptualization, methodology, validation:. S. A. W; formal analysis, investigation; resources, data curation: writing-original draft preparation; writing-review and editing; visualization U. M. S. All authors have read and agreed to the published version of the manuscript.

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## Declaration of generative AI in scientific writing

During the preparation of this work, the author(s) used Grammarly in order to refine the language, translate text, and edit the abstract for clarity. After using this tool/service, the author(s) reviewed and edited the content as needed and take(s) full responsibility for the content of the publication.

## References

Abhadionmhen, A. O., Imarenezor, E. P. K., Ogodo, A. C., & Ahuchaogu, A. A. (2025). Socioeconomic and cultural factors influencing traditional medicine (TM) use in Nigeria: A systematic mixed method review. *European Journal of Integrative Medicine*, *74*, 102436. https://doi.org/10.1016/j.eujim.2025.102436

Akpoghelie, E. O., Chiadika, E. O., Gaaz, T. S., Akpo, M. O., Edo, G. I., Yousif, E., Owheruo, J. O., Igbuku, U. A., Itoje-Akpokiniovo, L. O., Makia, R. S., Essaghah, A. E. A., Ahmed, D. S., Ozsahin, D. U., & Umar, H. (2026). The impact of government health expenditure on malaria, infant and maternal mortality rates in Nigeria. *Discover Public Health*, *23*(1), 649. https://doi.org/10.1186/s12982-026-01978-z

Aldawood, A., Hind, D., Rushton, S., & Field, B. (2024). Theories, models and frameworks to understand barriers to the provision of mobility-assistive technologies: A scoping review. *BMJ Open*, *14*(5), e080633. https://doi.org/10.1136/bmjopen-2023-080633

Alemayehu, T. T., Geremew, G. W., Bekalu, A. F., Abebe, T. B., Bayleyegn, Z. W., Bekele, A., Wassie, Y. A., Tadesse, S. H., Beshada, M. A., Feye, N. T., & Gebremeskel, E. D. (2026). Challenges and best practices in essential medicines supply and use in internally displaced persons (IDP) camps: A qualitative study. *Exploratory Research in Clinical and Social Pharmacy*, *22*, 100730. https://doi.org/10.1016/j.rcsop.2026.100730

Amboko, B., Nzinga, J., Musiega, A., Tsofa, B., Mugo, P., Mbau, R., Musuva, A., Murira, F., Wong, E., Mazzilli, C., Ng'ang'a, W., Ravishankar, N., Hussein, S., & Barasa, E. (2025). Examining the emergence and implementation experience of Primary Health Care Networks (PCNs) in Kenya: A qualitative process evaluation. *BMC Health Services Research*, *25*(1), 1479. https://doi.org/10.1186/s12913-025-13652-2

Amoah-Nuamah, J., Agyemang-Duah, W., Prosper Ninorb, G., & Gladstone Ekeme, B. (2023). Analysis of Spatial Distribution of Health Care Facilities and its Effects on Access to Primary Healthcare in Rural Communities in Kpandai District, Ghana. *Cogent Public Health*, *10*(1), 2183566. https://doi.org/10.1080/27707571.2023.2183566

Attahiru, A., Mohammed, Y., Mikailu, F., Waziri, H., Waziri, N. E., Tukur, M., Sunusi, B., Mahmoud, M. N., Vollmer, N., Vargas, W., Yusufari, Y., Corrêa, G., Reynolds, H. W., Fisseha, T., Bello, T. B., Kamateeka, M., Adewole, A. O., Bello, M., Bello, I. W., … Nguku, P. (2025). Decentralized Immunization Monitoring: Lessons Learnt from a Pilot Implementation in Kumbotso LGA, Kano State, Nigeria. *Vaccines*, *13*(7), 664. https://doi.org/10.3390/vaccines13070664

Cu, A., Meister, S., Lefebvre, B., & Ridde, V. (2021). Assessing healthcare access using the Levesque's conceptual framework– a scoping review. *International Journal for Equity in Health*, *20*(1), 116. https://doi.org/10.1186/s12939-021-01416-3

Dassah, E., Aldersey, H., McColl, M. A., & Davison, C. (2018). Factors affecting access to primary health care services for persons with disabilities in rural areas: A "best-fit" framework synthesis. *Global Health Research and Policy*, *3*(1), 36. https://doi.org/10.1186/s41256-018-0091-x

Fantaye, A. W., Okonofua, F., Ntoimo, L., & Yaya, S. (2019). A qualitative study of community elders' perceptions about the underutilization of formal maternal care and maternal death in rural Nigeria. *Reproductive Health*, *16*(1), 164. https://doi.org/10.1186/s12978-019-0831-5

George, M. S., Niyosenga, T., & Mohanty, I. (2023). Does the presence of health insurance and health facilities improve access to healthcare for major morbidities among Indigenous communities and older widows in India? Evidence from India Human Development Surveys I and II. *PLOS ONE*, *18*(2), e0281539. https://doi.org/10.1371/journal.pone.0281539

Hashemi, G., Wickenden, M., Bright, T., & Kuper, H. (2022). Barriers to accessing primary healthcare services for people with disabilities in low and middle-income countries, a Meta-synthesis of qualitative studies. *Disability and Rehabilitation*, *44*(8), 1207–1220. https://doi.org/10.1080/09638288.2020.1817984

Iamtrakul, P., Chayphong, S., & Gao, W. (2024). Assessing spatial disparities and urban facility accessibility in promoting health and well-being. *Transportation Research Interdisciplinary Perspectives*, *25*, 101126. https://doi.org/10.1016/j.trip.2024.101126

Iliyasu, Z., Farouk, Z., Lawal, A., Bello, M. M., Nass, N. S., & Aliyu, M. H. (2020). Care-seeking behavior for neonatal jaundice in rural northern Nigeria. *Public Health in Practice*, *1*, 100006. https://doi.org/10.1016/j.puhip.2020.100006

Iliyasu, Z., Umar, A. A., Gaya, F. S., Nass, N. S., Abdullahi, H. M., Kwaku, A. A., Amole, T. G., Tsiga-Ahmed, F. I., Galadanci, H. S., Salihu, H. M., & Aliyu, M. H. (2023). *'We delivered at home out of fear'*: Maternity Care in Rural Nigeria During the COVID-19 Pandemic. *International Journal of MCH and AIDS*, *12*, e632. https://doi.org/10.21106/ijma.632

Im, H., Li, F., Stover, S., Abel, C., Farmer, J., García, C. M., Lee, J.-A., & Wyczalkowski, C. K. (2025). Overcoming Transportation Barriers for Low-Income Individuals with Chronic Conditions: Identifying Barriers and Strategies in Access to Healthcare and Food as Medicine (FAM). *Healthcare*, *13*(22), 2869. https://doi.org/10.3390/healthcare13222869

Kalam, M. A., & Pal, S. (2026). Experiences of trust, accessibility and community participation in rural sub health centres in West Bengal. *Discover Health Systems*, *5*(1), 54. https://doi.org/10.1007/s44250-026-00394-z

Katende-Kyenda, L. N. (2025). Non-Adherence to Treatment Among Patients Attending a Public Primary Healthcare Setting in South Africa: Prevalence and Associated Factors. *International Journal of Environmental Research and Public Health*, *22*(11), 1665. https://doi.org/10.3390/ijerph22111665

L. Maliyogbinda, J. (2024). Commodity Security: The Role of Drug Revolving Fund Scheme in Low- and Middle-Income Countries. In A. Michaud, S. P. Stawicki, & R. Izurieta (Eds.), *Sustainable Development* (Vol. 17). IntechOpen. https://doi.org/10.5772/intechopen.112790

Le, K. H., La, T. X. P., & Tykkyläinen, M. (2022). Service quality and accessibility of healthcare facilities: Digital healthcare potential in Ho Chi Minh City. *BMC Health Services Research*, *22*(1), 1374. https://doi.org/10.1186/s12913-022-08758-w

Li, B., & Chen, J. (2022). Barriers to Community-Based Primary Health Care Delivery in Urban China: A Systematic Mapping Review. *International Journal of Environmental Research and Public Health*, *19*(19), 12701. https://doi.org/10.3390/ijerph191912701

Ma, L., Luo, N., Wan, T., Hu, C., & Peng, M. (2018). An Improved Healthcare Accessibility Measure Considering the Temporal Dimension and Population Demand of Different Ages. *International Journal of Environmental Research and Public Health*, *15*(11), 2421. https://doi.org/10.3390/ijerph15112421

Metiso, N. F., & Mboweni, S. H. (2025). Barriers and Enablers of Health Services Utilisation in Rural Communities of Nkomazi Sub-District in Mpumalanga Province, South Africa: A Quantitative Community Survey. *Health Services Insights*, *18*, 11786329251356931. https://doi.org/10.1177/11786329251356931

Moeti, T., Mokhele, T., Weir-Smith, G., Dlamini, S., & Tesfamicheal, S. (2023). Factors Affecting Access to Public Healthcare Facilities in the City of Tshwane, South Africa. *International Journal of Environmental Research and Public Health*, *20*(4), 3651. https://doi.org/10.3390/ijerph20043651

Mostafavi, H., Mohamadi, E., Mohammadi, A., Bakhtiari, A., Jafarzadeh, J., Olyaeemanesh, A., & Takian, A. (2026). Barriers to utilization of primary healthcare services: A systematic review of experiences in ten selected countries. *International Journal of Public Health*, *71*, 1609249. https://doi.org/10.3389/ijph.2026.1609249

Mseke, E. P., Jessup, B., & Barnett, T. (2024). Impact of distance and/or travel time on healthcare service access in rural and remote areas: A scoping review. *Journal of Transport & Health*, *37*, 101819. https://doi.org/10.1016/j.jth.2024.101819

Mwabu, G. (2022). Time, health service utilisation and health status in Africa: Evidence from six countries. *South African Journal of Economics*, *90*(4), 456–468. https://doi.org/10.1111/saje.12320

Namirembe, B., Nakimuli, B., Ssennyonjo, A., Ochanda, P., Ekirapa, E., Mbuthia, B., Mwenda, M., Nyawira, L., Githinji, J., Ssempala, R., Mayora, C., Byakika, S., Walimbwa, A., & Ssengooba, F. (2026). Strengthening accountability in strategic health purchasing arrangements for primary health care in Uganda. *SSM - Health Systems*, *6*, 100205. https://doi.org/10.1016/j.ssmhs.2026.100205

Nasrin, S., & Chowdhury, S. (2024). Exploring transport mobility issues and adaptive behavior of women in a developing country. *Transportation Research Interdisciplinary Perspectives*, *23*, 100991. https://doi.org/10.1016/j.trip.2023.100991

Nwagbara, U. I., Hlongwana, K. W., & Chima, S. C. (2024). Mapping evidence on the factors contributing to long waiting times and interventions to reduce waiting times within primary health care facilities in South Africa: A scoping review. *PLOS ONE*, *19*(8), e0299253. https://doi.org/10.1371/journal.pone.0299253

Nwokoro, U. U., Ugwa, O. M., Ekenna, A. C., Obi, I. F., Onwuliri, C. D., & Agunwa, C. (2022). Determinants of primary healthcare services utilisation in an under-resourced rural community in Enugu State, Nigeria: A cross-sectional study. *Pan African Medical Journal*, *42*. https://doi.org/10.11604/pamj.2022.42.209.33317

Ogunyemi, A., Balogun, M., Ojo, A., Welch, S., Akeju, D., Onasanya, O., Omotayo, A., Shu-Ting, L., & Hirschhorn, L. (2025). Factors influencing primary health care service provision to older adults in lagos, nigeria: Understanding the experiences of the demand population. *BMC Public Health*, *25*(1), 3016. https://doi.org/10.1186/s12889-025-23965-w

Park, J.-E., Kibe, P., Yeboah, G., Oyebode, O., Harris, B., Ajisola, M. M., Griffiths, F., Aujla, N., Gill, P., Lilford, R. J., & Chen, Y.-F. (2022). Factors associated with accessing and utilisation of healthcare and provision of health services for residents of slums in low and middle-income countries: A scoping review of recent literature. *BMJ Open*, *12*(5), e055415. https://doi.org/10.1136/bmjopen-2021-055415

Perera, S., Ramani, S., Joarder, T., Shukla, R. S., Zaidi, S., Wellappuli, N., Ahmed, S. M., Neupane, D., Prinja, S., Amatya, A., & Rao, K. D. (2024). Reorienting health systems towards Primary Health Care in South Asia. *The Lancet Regional Health - Southeast Asia*, *28*, 100466. https://doi.org/10.1016/j.lansea.2024.100466

Rai, A., Khatri, R. B., & Assefa, Y. (2024). Primary Health Care Systems and Their Contribution to Universal Health Coverage and Improved Health Status in Seven Countries: An Explanatory Mixed-Methods Review. *International Journal of Environmental Research and Public Health*, *21*(12), 1601. https://doi.org/10.3390/ijerph21121601

Schipper, L., Luijkx, K., Meijboom, B., & Schols, J. (2015). The 3 A's of the access process to long-term care for elderly: Providers experiences in a multiple case study in the Netherlands. *Health Policy*, *119*(1), 17–25. https://doi.org/10.1016/j.healthpol.2014.07.020

Vann Yaroson, E., Quinn, G., & Breen, L. (2024). Medicines Shortages Reporting Systems (MSRS): An exploratory review of access and sustainability. *Research in Social and Administrative Pharmacy*, *20*(6), 72–83. https://doi.org/10.1016/j.sapharm.2024.02.010

Xi, H., Nelson, J. D., Mulley, C., Hensher, D. A., Ho, C., & Balbontin, C. (2025). Addressing transport disadvantages in regional and rural areas through integrated mobility services. *Research in Transportation Economics*, *114*, 101650. https://doi.org/10.1016/j.retrec.2025.101650

Zamani-Nezhad, L., Nekoei-Moghadam, M., Amiresmaili, M., Akbar Haghdoost, A., & Yazdi-Feyzabadi, V. (2026). Challenges and opportunities in financing urban primary healthcare in Iran: Pathways to universal health coverage. *BMC Primary Care*, *27*(1), 129. https://doi.org/10.1186/s12875-026-03224-6

Zhang, Y., Zhou, M., Hu, J., & Wang, R. (2025). Bridging accessibility gaps in urban community-based basic older adult care: A comprehensive framework validated in Xi'an, China. *Frontiers in Public Health*, *13*, 1535987. https://doi.org/10.3389/fpubh.2025.1535987