

Influence of HIV/AIDS Care and Support Services Accessibility on Utilization among HIV Infected Adults in Baringo County, Kenya

Danvas N. Otara¹, Alex K. Chebor², Evans Raballah³

¹School of Nursing, Midwifery and Paramedical Sciences, Masinde Muliro University of Science and Technology, Kakamega, Kenya. ORCID ID: <https://orcid.org/0000-0002-2953-4263>

e-mail: onyachio@hotmail.com

²School of Nursing, Midwifery and Paramedical Sciences, Masinde Muliro University of Science and Technology, Kakamega, Kenya.

e-mail: alexchebor@gmail.com

³School of Public Health, Biomedical Sciences and Technology, Masinde Muliro University of Science and Technology, Kakamega, Kenya.

e-mail: eraballah@mmust.ac.ke

Received October 17, 2023, accepted October 31, 2023, Published April 1, 2024.

ABSTRACT

Context: Globally, efforts are being made to end the HIV/AIDS pandemic and improve the general health of people living with HIV/AIDS through continuous access to care and support services. However, the incidence of dropouts from utilization of HIV care and support services is rising among the HIV-positive clients enrolled in comprehensive care clinics in Baringo County for unidentified reasons. As a result, recognizing the opportunities and challenges in low-resourced communities that must be overcome to promote greater access to care and treatment will influence higher utilization.

Aim: This study evaluates the influence of accessibility of HIV/AIDS care and support services on the utilization of HIV-infected adults in Baringo County.

Methods: The study was conducted in Baringo County HIV comprehensive care centers. An analytical cross-sectional study design was used with 580 participants recruited. An interviewer-administered questionnaire was used to obtain data.

Results: Support from social services ($p < 0.0001$), less frequent visits to clinics less than one month ($p < 0.0001$), access to treatment interventions ($p < 0.0001$), and easily accessible information ($p < 0.0001$) were among the factors associated with good accessibility to HIV services, according to bivariate analysis. Conversely, being an atheist ($p < 0.006$), residing in rural areas ($p \leq 0.0006$), difficulty accessing services ($p \leq 0.0001$), and getting to another town ($p < 0.03$) or getting to another county ($p \leq 0.0004$) were linked to inadequate access to HIV/AIDS care and support services.

Conclusion: The findings show that the efforts to support clients' access to HIV/AIDS care and support services should be made in response to their individual needs and consideration of geographical location. Besides, individualized HIV/AIDS services access depends on the support provided, where they are located, easily accessible information about the services, and how frequently they are provided. In contrast, living in rural areas, seeking services in a different town, feeling ashamed to visit clinics, and having a lower CD4 count were all associated with poor accessibility and utilization of HIV/AIDS care and support services. Consequently, it is necessary to establish support initiatives to address any of these access issues that particular clients might have.

Keywords: Accessibility, HIV/AIDS care, support services, utilization, Baringo County

Citation : Otara, D. N., Chebor, A. K., & Raballah, E. (2024). Influence of HIV/AIDS care and support services accessibility on utilization among HIV Infected adults in Baringo County, Kenya. *Evidence-Based Nursing Research*, 6(2), 16-28. <http://doi.org/10.47104/ebnrojs3.v6i2.333>.

1. Introduction

Approximately 37.5 million of the 39 million people living with HIV/AIDS worldwide today are adults who are 15 years of age or older, with the majority found in sub-Saharan Africa (UNAIDS, 2023a). Besides this, HIV/AIDS infection has had no permanent cure. Nevertheless, with prompt access to effective HIV diagnosis, treatment, and care, including for opportunistic infections, HIV infection has transformed into a manageable chronic health condition, allowing those living with HIV/AIDS to lead long and healthy lives. To reap the benefits of therapy, people living with HIV/AIDS (PLWHA) must receive treatment for the remainder of their lives along with ongoing support. On the other hand, treatment non-

adherence issues can lead to medication resistance and treatment failure (Castel et al., 2015; Nega et al., 2020; World Health Organization (WHO), 2023).

Nonetheless, earlier studies have shown that people with HIV/AIDS frequently face greater barriers to their access to HIV/AIDS care despite their greater need (Castel et al., 2015). For instance, a study conducted at Baringo County referral hospital revealed that clients' discontinuing or temporarily disengaging from those services before re-engaging for unidentified reasons worsened their health conditions (Yonga et al., 2020). Similarly, Bor et al. (2021) reported that PLWHA requires sustained access to higher standard HIV care

¹Correspondence author: Danvas Nyachio Otara

and treatment that is efficient, dependable, timely, and available. This care should include routine clinical examinations for early infection detection, prompt linkage to care, assistance with maintaining treatment, monitoring treatment failure, and maintaining treatment compliance. By achieving a decreased viral load, the activities above will lead to improved health outcomes for people living with HIV/AIDS (Bor et al., 2021).

As per the Kenyan National AIDS & STI Control Program, 2022, the typical care package for people living with HIV/AIDS comprises eight elements, which include antiretroviral therapy, positive health, and Gender-Based Violence/Intimate Partner Violence (GBV/IPV) education and counseling, reproductive health services, mental health screening and management, nutrition services, screening and prevention of opportunistic infections, screening and management of non-communicable diseases, and prevention of other infections. In addition, the PLWHA should receive support services that must include individualized adherence plans, adherence support networks, psychosocial counseling, support for PLWHA and caregivers, and support networks for well-being. Likewise, the other aspect of the necessary care is a formal system for connecting patients with community-based resources that relate to health promotion (*National AIDS STI Control Program (NASCOP), 2022*).

At the same time, there are several integrated elements and actors at all stages of HIV/AIDS care and support that have a positive or negative impact on access to care. However, the most significant factors are those at the individual and health system levels (Sanga et al., 2019). Considering this, interventions aimed at improving HIV health outcomes for individuals are necessary. These should prioritize expanding access to HIV care and support services, reducing HIV-related health disparities and inequities, and establishing integrated, coordinated efforts among all partners and stakeholders to combat the HIV epidemic (HIV.gov, 2022).

Nevertheless, to end the pandemic, UNAIDS announced 95–95–95 targets for 2030 (UNAIDS, 2015). Besides, the county government of Baringo reviewed its measures, hoping to provide quality and accessible HIV care services across the County to achieve optimal use of services (*Office of the Governor Baringo County Government (2018)*). Even so, HIV/AIDS remains a significant cause of morbidity and mortality in the County, placing a strain on county health systems and burdening households. Besides, many challenges disrupt access to HIV care at multiple levels, including at the individual, societal, and health systems levels, that must be explored (Baguso et al., 2019; Meka et al., 2020).

Consequently, considering the gaps above, this study investigated the influence of accessibility of HIV/AIDS care and support services on utilization among adults in Baringo County. The results of this study are intended to enhance clinical and community healthcare structures to optimize and increase access to HIV care and support services. Furthermore, because of their personal experiences, PLWHA may be best qualified to provide insight into the particular facilitators and barriers to accessing HIV/AIDS services.

2. Significance of the study

Geographically, Kenya's HIV epidemic is spread throughout the country. General clinics designated for HIV

care and treatment predominately offer these services (UNAIDS, 2023b). However, data have shown that access to HIV care and support services is a significant factor in discontinuing or dropping out of HIV care and treatment. As a result, the Ministry of Health in Kenya [MOH] guidelines aim to address HIV care and support service gaps by scaling up comprehensive interventions, which uphold the "leave no one behind" principle while focusing on community-centered approaches and local needs (*National AIDS Control Council, 2020*). However, Baringo County is still experiencing high levels of care and treatment interruption, with many clients still lost to follow-up, a widespread issue across multiple clinics that requires to be addressed. For these reasons, the Baringo County government reviewed its HIV/AIDS treatment and support services, aiming for quality, affordable, and accessible services.

Unlike the rest of Kenya, the problem in Baringo County may be attributed to its diverse population of ethnic groups and pastoralists, retrograde culture and traditions, and difficult geographic, social, and economic conditions. Furthermore, the persistent unrest in this County, cattle rustling, and banditry activities may have a negative impact on the accessibility of health care services in this area. It is also important to note that the County has 187 healthcare facilities, which is an adequate number. However, only about one-third of the healthcare facilities are equipped to provide all-encompassing HIV-related services (*Baringo County AIDS Strategic Plan (BCASP), 2015 – 2019 (2023)*).

Therefore, this study is essential for the Baringo County government and providers of HIV/AIDS healthcare, as it affords insights into the influence of accessibility on HIV care utilization among adults. This insight will certainly assist in contextualizing HIV/AIDS care support interventions and retaining patients to contribute to achieving 100% HIV treatment targets. The study, nevertheless, the purpose is to aid the County government and stakeholders involved in HIV care and support services in expanding services, promoting accessibility, promoting increased utilization, and reducing care along the HIV/AIDS treatment cascade loss.

3. Aim of the study

This study aimed to evaluate the influence of accessibility of HIV/AIDS care and support services on the utilization by HIV-infected adults in Baringo County.

3.1. Operational definition

In this context, access refers to the initial opportunity to enroll in a comprehensive care clinic and begin receiving antiretroviral therapy (ART) services and the ability to continue receiving the care, prescribed medication regimens, and support services.

4. Subjects & Methods

4.1. Research Design

A cross-sectional analytic research design was employed. The objective of these studies was to gather data from a group of participants at a single point in time. Since accessibility is our primary study variable, we used this design to examine the association between the utilization of

HIV/AIDS care and support services and accessibility during the study.

4.2. Study setting

Baringo County is located in the former Rift Valley Province and has a population of 679,000 and an HIV prevalence of 1.6% (*Office of the Governor County Government of Baringo (2018)*). Dry and semi-dry lands comprise the County (*Kiprutto et al., 2007*). The County is predominantly rural, with major economic activities including pastoralism, agriculture, and sand harvesting. Administratively, it consists of six sub-counties, 30 electoral wards, and 116 sub-locations. The main ethnic communities are Tugen, Pokot, and Ilchamus, with minority groups like Endrois, Nubians, Ogiek, Kikuyu, and Turkana. Despite this, there are 187 medical facilities in Baringo County, 36 of which offer comprehensive HIV/AIDS care services (*Baringo County AIDS Strategic Plan (BCASP), 2015 – 2019 (2023)*).

The Tujenge Jamii project of the US Agency for International Development (USAID) and the County government fund specialized outpatient Comprehensive Care Clinics located in the sub-counties across Baringo County that offer HIV care and support services. Approximately 5569 PLWHA are registered in these clinics for treatment follow-ups (*Office of the Governor, County Government of Baringo, 2023*). ART medication delivery is one of the care and support services that are regularly provided, along with therapy and other services, e.g., treatment of opportunistic infections, nutritional counseling, adherence support, and reproductive health services. Besides, internal medicine services are frequently provided by hospital wards that take inpatient clients.

Before beginning ART treatment, a patient must first get counseling. Then, the individuals undergo various investigations and examinations, including a CD4 count. The first follow-up appointment is set for one month after ART is started. Patients get buffer tablets during the first two days of therapy. After that, there will be a three-month gap between the next two appointments. After that, the visits are then scheduled every six months. Additionally, within two weeks after the planned visit date, adherence counselors follow up with patients who have missed a clinic appointment. Extra-adherence counseling is provided for patients who exhibit missing visits or who intermittently stop receiving therapy.

4.3. Subjects

The study targeted all HIV-positive adults diagnosed in Baringo County and enrolled in Comprehensive Care Centers.

Inclusion criteria

The study respondents who participated in this study were required to:

- Be all adults (>15 years) who tested positive for HIV.
- Be all clients enrolled for HIV care and support in Comprehensive Care Clinics located in Baringo County.
- Be residents of Baringo County for at least six months
- Consent to take part in the study.

Exclusion criteria

- Clients who were too sick to participate in the study based on the self-report.
- Those who have a mental illness.
- All those who did not consent to take part in the study.

Sample size and sample size determination

The following Fischer's equation was used to determine the quantitative sample size, taking into account similar applications elsewhere (Waithaka et al., 2010), as shown:

$$n = \frac{D(z^2 pq)}{d^2}$$

Where:

- n= Sample size
- D=Design effect due to the non-use of simple random sampling. This design ranges between 1.5 – 2.0.
- q = 1- p
- Z= Standard Normal deviation (1.96 for a 95% confidence level).
- p= the proportion of the population who possess the traits under consideration, i.e., 50%.
- d= = the desired accuracy level or the sampling error (Often set at 0.05).

Because the number of HIV-infected adults in Baringo County is less than 10,000, (the adult population 15 years and above was approximated at 6000 (*National AIDS Control Council, 2018*); the sample size was adjusted using the formulae:

$$nf = n/1 + (n-1/N)$$

Where:

- nf= the final sample size when the population is <10,000.
- n the sample size of the populations of 10,000 or more.
- N= the size of the total population from which the sample is drawn,

Hence:

A 10% (53) allowance was included for non-response, resulting in a sample size of 580 respondents.

Sampling techniques

Stratified sampling was carried out to divide the County into six existing sub-counties. We randomly selected four sub-counties for study from the list of 6 sub-counties (clusters) in Baringo County. Due to ongoing security operations at the time of the study, the Tiaty sub-county was excluded from the study due to active police operations against banditry during the study period. Similarly, the Mogotio sub-county was omitted because that is where the pilot study was conducted. Each health facility with an HIV/AIDS Comprehensive Care Clinic in the four selected sub-counties was provided a sample proportionated to the study sample of 580 subjects. A list of all PLWHA registered for treatment at each selected health center was used as the sampling frame. Then, systematic random sampling was used to select the respondents from the pool to ensure randomness till up to 580 respondents were picked. Trained community health volunteers were used to locate the homes of identified subjects and administer the questionnaires.

4.4. Tools of data collection

4.4.1. Interviewer-Administered Questionnaire

The study employed an interviewer-administered questionnaire. The items contained in the study tool were researcher-developed with the review of similar studies and literature review. The questionnaire was predominantly formatted with closed-ended questions; however, some questions offered the opportunity to add additional information for a more open-ended information collection. The questionnaire questions represented the main variables measured in this study, which are HIV/AIDS care and support services accessibility and Utilization in Baringo County. The questionnaire had three sections.

The first section measured the predisposing determinants of HIV/AIDS care services accessibility influencing utilization. In this section, the researcher developed socio-demographic characteristics items, which included information such as residential place, age, gender, marital status, religious affiliation, education level, economic activity, and CD4 count.

The second section consisted of an assessment of the stigma associated with the accessibility of HIV/AIDS care and support services that influence the utilization of services. It consisted of 4 items on a 4-point Likert scale that was used to measure the important aspects of stigma by rating the items on categories ranging from strongly agree to strongly disagree (1= "Strongly agree," 2= "Agree," 3= "Disagree," and 4= "Strongly Disagree") such as "People with HIV feel ashamed of themselves to attend care clinic," "People think that having HIV is shameful and should not be associated," and " Fears of how other people respond when attending the clinic make one hesitate to get care service."

The third section comprised enabling factors, which contained 20 items to assess the accessibility of HIV care and support services and utilization. The first nine items considered how often the participants visit the clinic, the mode of transport used, and the rating of how easy or difficult it is to obtain HIV/AIDS care services. In addition, a rating scale of Yes, No, Unsure was used to measure getting HIV/AIDS care and support services information comprising easy-to-find, easily accessible, getting information about HIV Services for people with disability, easy to understand, useful information, and transparent financial costs. The additional ten items were used to measure the participant's experiences with delays in accessing HIV/AIDS services (rating the delays in ARTs, treatment interventions, tests, and appointments with nurses or specialists and help support from social services). A Yes, No, or Unsure rating system was used for these items. Furthermore, a rating scale of yes or no was used to assess if clients needed the following when seeking HIV care and treatment: going to another town or region, a mobile device, or transportation.

4.5. Procedures

Ethical Considerations: The Masinde Murilo University Research Ethics Board, NACOSTI, and the Baringo County Government Department of Health all gave their clearance for the study (MMUST/IERC/063/2022, NACOSTI/P/22/18099, and REF:

BCG/HS/RES/01/VOL.1/07, respectively). Participants provided their informed consent after being informed of the study's objectives and given the choice to participate. Nonetheless, all data were treated with confidentiality and privacy ensuring all respondent information was kept secret and anonymous. Questionnaires were assigned identification numbers, and participants were interviewed separately. A password protected the database, and only the chief researcher accessed the information.

Validity of the instrument: The tool used in this study was submitted to the two university professors and lecturers at Masinde Muliro University School of Nursing, Midwifery and Paramedics to ascertain the face and content validity of the questionnaire before being utilized for the study. To best match the study's objective, items deemed inadequate or unnecessary were removed or reorganized. All the adjustments added together resulted in the study questionnaire's final draft.

Reliability of the instrument: The test-retest approach was selected to ascertain the degree of reliability of the study questionnaire. Using this technique, the questionnaire was administered to fifty-eight HIV (58) clients, representing 10% of the total sample (n=580), and within two-week intervals, the instrument was administered again to the same clients. Subsequently, the test-retest scores were analyzed using Pearson's product-moment correlation (r) and the coefficient of statistics reliability. A Pearson correlation between the original and re-test scores was between 0.75 to 0.89 (p<0.001), indicating the instrument's high level of reliability. Consequentially, a scoping review of the existing literature demonstrates acceptable test-retest correlation of 0.70 to 0.80 or higher is generally regarded as indicative of strong reliability (Oktavia et al., 2018).

A pilot study was conducted to verify the validity and appropriateness of the data collection instrument, the research questions' clarity, and the research process's feasibility. The pilot study was conducted before the main study, involving fifty-eight clients (58), or 10% of the total sample. Although the results of the pilot study did not require any modifications to the instruments, the results were not utilized in the final study's analysis to prevent data contamination.

Data collection procedure: The data was collected using an interviewer-administered questionnaire from the consenting HIV-infected adults receiving HIV care and support services enrolled in the sampled Comprehensive Care Centers in Baringo County. The researcher was assisted by six research assistants trained on the instrument and the data collection process from Comprehensive Care Centers located within the sub-counties of their residences. The chief researcher checked the data collection instrument once it had been filled to determine if it was complete and address any relevant questions arising immediately.

Data Management: Data cleaning began as soon as the data had been gathered. The researcher reviewed all the data-gathering tools to ensure the information was accurate, thorough, and recorded. All the questionnaires were assembled the night before each data-collecting day, and a folder was used for safe storage. Before the results were tallied, the chief researcher reviewed each questionnaire to ensure it was complete.

4.6. Data analysis

Statistical analysis was performed with the Statistical Package for the Social Sciences (SPSS Ver. 27). Frequencies, means, standard deviations, and descriptive statistics were generated. Inferential statistics (univariate and bivariate analyses) were used to compare categorical independent variables with the primary outcome (accessibility of HIV care and support services). Statistical significance was set at $P \leq 0.05$. Second, qualitative data were analyzed by researching several new concepts (topics) to support user access to HIV care and service utilization.

5. Results

Social demographic characteristics of the population: Table 1 reveals a total of 519 out of a sample size of 580 took part in the study, giving a response rate of 89.5%. As shown in Table 1, the mean age was 41.4 with an SD of ± 13 . The highest percentage of the participants were married (59.3%) and had attained secondary education (44.5%).

Table 2 represents the association between the socio-demographic characteristics of HIV clients and the utilization of HIV care and support services. In order to examine the association between socio-demographic characteristics of HIV Clients and utilization of HIV care and support services, bivariate analysis was performed on several independent variables, with the outcome being having visited a health facility for HIV care and support services in the last six months.

Table 2 shows that atheists were 76.6% less likely to have utilized the services (OR: 0.4; 95% CI: 0.2 – 0.8; $p = 0.006$), the same way that 69.7% of those from rural areas were unlikely to have gone for the services (OR: 0.5; 95% CI: 0.4 – 0.7; $p = 0.0006$). The findings also reveal that those from the Tugen ethnic community were 65.8% less likely to have used the services (OR: 0.8; 95% CI: 0.4 – 0.9; $p = 0.011$). Conversely, individuals whose monthly income was less than KSH 10,000 had a 2.5-fold higher likelihood of utilizing the services (OR: 2.5; 95% CI: 1.6 – 4.0; $P < 0.0001$). Notably, the likelihood of using the services among those with no education versus their counterparts with primary education and above was 1.7, with the association being marginally statistically significant ($p = 0.06$).

Table 3 illustrates the results of patients' views on the accessibility and availability of HIV care and support services concerning information acquisition about HIV health services. Most of the participants (54.7%) visit the facilities between 4 – 6 months, 56.1% of whom use vehicles to travel, motorbike (35.8%) and walking to clinic (8.1%). The mean traveling time in hours is 1.25 ± 1.01 . However, obtaining care services in the last six months has been very difficult for most of them (53.5%).

On acquisition of information about the services, 89.2% said that it was easy to find and easily accessible (79.4%) with a smaller proportion agreeing that is true for people with disabilities (37.2%). Such information is equally easy to understand (71.9%) and useful (90.7%), though transparency on financial costs (out-of-pocket costs) is compromised (29.7%) to some extent.

Table 4 represents the accessibility of HIV care and support services (Experienced delays in accessing the

following HIV health care services). Concerning delays in accessing HIV health care services, around one-third of respondents reported delays in accessing treatment interventions, surgery or other procedures (30.4%), tests (22.0%), getting an appointment with a doctor/nurse (19.8%) or with a specialist (32.8%). The same was true of getting help from social services (41.4%). Besides, 39.7% need to go to another town to get the service they need, 22.7% go to another region for the service they need, 43.4% need a mobile to help them access health care service remotely or require transportation 48.0%.

Table 5 shows results on the influence of accessibility and availability of HIV/AIDS care and support services on the utilization of the services among HIV-infected adults. There was a statistically significant positive association between the following variables and the outcome: Frequency of visiting the clinic (OR: 2.4; 95% CI: 1.6–3.6; $p < 0.0001$), accessing information about HIV medicines (OR: 3.1; 95% CI: 2.0–4.9; $p < 0.0001$), treatment interventions, surgery or other procedures (OR: 2.4; 95% CI: 1.7–3.6; $p < 0.0001$), a test (OR: 1.9; 95% CI: 1.3–2.9; $p = 0.002$), an appointment with a doctor/nurse (OR: 5.0; 95% CI: 3.1–8.0; $p < 0.0001$), a specialist (OR: 2.6; 95% CI: 1.8–3.8; $p < 0.0001$), help support from social services (OR: 2.5; 95% CI: 1.7–3.6; $p < 0.0001$), going to another town to get the service needed (OR: 1.5; 95% CI: 1.0–2.1; $p = 0.03$), going to another county to get the services needed (OR: 2.1; 95% CI: 1.4–3.2; $p = 0.0004$) and utilization of HIV care and support services with higher odds being reported in each case.

On the other hand, those who found it very difficult to obtain care services were 68.6% less likely to have utilized them (OR: 0.3; 95% CI: 0.2–0.5; $p < 0.0001$). On the contrary, participants who could easily access information about HIV care services (OR: 0.4; 95% CI: 0.3 – 0.6; $p < 0.0001$) or such information for people with disabilities were less likely to utilize the services (OR: 0.6; 95% CI: 0.4 – 0.9; $p = 0.002$).

Table 6 shows bivariate analysis results on the relationship between stigma and discrimination in the utilization of HIV/AIDS care and support services. Two variables that are statistically significantly associated with the outcome of interest are those who agree that people with HIV feel ashamed of themselves to attend care clinics (OR: 0.4; 95% CI: 0.3–0.6; $p < 0.0001$) and that people think that having HIV is shameful and should not associate (OR: 0.4; 95% CI: 0.3–0.6; $p < 0.0001$). There was a marginal statistical relationship between those who agreed that fears of how other people respond when attending the clinic make them hesitate to get care services (OR: 0.7; 95% CI: 0.5–1.0; $p = 0.06$). In each case, the participants who agreed with the statements were less likely to have utilized the care services.

6. Discussion

The persons living with HIV/AIDS (PLWHA) should have prompt access to and adhere to support and care services for better health outcomes. Nevertheless, this draws attention to the influence of behavioral, contextual, and personal aspects on patients' participation in care. Comprehending the interplay among these constituents facilitates an understanding of how accessibility to

HIV/AIDS care and support services influences the use of those services by individuals living with HIV in Baringo County. Consequently, this study aimed to evaluate the influence of accessibility of HIV/AIDS care and support services on the utilization of HIV-infected adults in Baringo County.

Among the most notable findings of this study on the socio-demographic characteristics of participants and utilization of HIV services, atheists were less likely to have utilized the services. In the same way, those from rural areas were unlikely to have gone for the services, the results being statistically significant. This finding suggests that a person's religious practices may have an impact on how they use HIV/AIDS care and support services. Religion's well-known characteristics, such as "being born again, being obedient, less alcohol use, and fidelity to sexual partners," seem to be among the factors that, when compared to atheists, may encourage HIV/AIDS service use (Azia et al., 2023). Moreover, enhancing the accessibility of healthcare facilities in close collaboration with religious authorities may be one way to boost the percentage of patients who have a thorough understanding of HIV/AIDS care and support (Zegeye et al., 2022).

On the contrary, a study in Northwest Ethiopia discovered that religious fervor and medicine adherence were not substantially correlated with church attendance, prayer, and reading of the Bible or other religious texts (Kasahun et al., 2022). What is different in the results of this study is that those who are religious could most likely have access to more information on available HIV care and support services than atheists. Besides, the findings point to unequal access to HIV treatment between rural and urban

areas, which variations in infrastructure, socioeconomic status, and culture can explain. The findings of this study concur with a similar study in Pakistan, which reported that rural residents were less likely to be taking ART and more likely to seek care later, which increases the likelihood of them having insufficient access to healthcare (Ahmed et al., 2022).

Likewise, the present research reveals a statistically significant positive correlation between the frequency of clinic visits, accessing treatment interventions, surgery, or other procedures, as well as appointment with the doctor or nurse and utilization. Higher odds were reported in each case. This finding implies that low utilization could be the reason for fewer clinic visits, and patients who visit clinics infrequently could have worsened HIV-related outcomes due to a decrease in the clients' continuous monitoring for therapeutic response. In a similar study by Dear et al. (2022) on an African cohort study, alcohol use, a history of incarceration, depression, and viral non-suppression were all linked to infrequently missed routine clinic visits (Dear et al., 2022). On the contrary, Mutas-Apollo et al. (2017) systematic review on easing the burdening impact of clinic visit frequency on antiretroviral treatment outcomes indicates that reducing clinical visits and pick-ups of ARVs may enhance clinical outcomes and be a feasible way to relieve pressure on health systems and care for people living with HIV/AIDS (Mutas-Apollo et al., 2017). Even so, it is generally recommended to monitor HIV/AIDS clients continuously, and the frequency of visits should not be determined by the severity of the client's illness but by scheduling regular visits.

Table (1): Socio-demographic characteristics of HIV/AIDS participants (n=519).

Variables	No.	%
Gender		
Male	240	46.2
Female	279	53.8
Age group in years		
15-24	47	9.1
25-34	124	23.9
35-44	162	31.2
45-54	98	18.9
≥ 55	88	17.0
Mean±SD	41.4 ± 13.1	
Range in years	(15.0 – 84.0)	
Marital status		
Married	308	59.3
Single	97	18.7
Divorced	47	9.1
Widow	67	12.9
Level of education		
None [No formal education]	55	10.6
Primary	109	21.0
Secondary	231	44.5
College/University	124	23.9
Religion		
Atheist [Non-believers]	64	12.3
Muslim	43	8.39
Catholic	197	38.0
Protestant	215	41.4

Table (2): Association between socio-demographic characteristics of HIV clients and utilization of HIV care and support services (n=519).

Variables	n	Utilization of HIV Services		OR	95% CI	P-value
		Yes	No			
Gender						
Male	240	38.3	61.7	0.9	0.6–1.3	0.67
Female	279	40.1	59.9			
Age group in years						
≤30	116	36.2	63.8	0.8	0.6–1.3	0.44
>30	403	40.2	59.8			
Marital status						
Married	308	38.6	61.4	0.9	0.6–1.3	0.71
Not married	211	40.3	59.7			
Level of education						
None	55	50.9	49.1	1.7	1.0–3.0	0.06
Primary and above	464	37.9	62.1			
Religion						
Atheists	64	23.4	76.6	0.4	0.2–0.8	0.006
Christians / Muslims	455	41.5	58.5			
Residence						
Rural	208	30.3	69.7	0.5	0.4–0.7	0.0006
Urban/Peri -Urban	311	45.3	54.7			
Ethnicity						
Tugen	275	34.2	65.8	0.8	0.4–0.9	0.011
Other tribes	244	45.1	54.9			
Employment status						
Unemployed	128	43.0	57.0	1.2	0.8–1.8	0.33
Employed	391	38.1	61.9			
Monthly income (KSh)						
<10,000	393	44.3	55.7	2.5	1.6–4.0	<0.0001
≥10,000	126	23.8	76.2			
Number of people supported by the income						
≤3	142	42.2	57.8	1.2	0.8–1.7	0.40
>3	377	38.2	61.8			
Number of years post HIV diagnosis						
≤5	50	40.0	60.0	1.0	0.6–1.9	0.92
>5	469	39.2	60.8			
Last CD4 count						
≥500	95	44.2	55.8	1.3	0.8–2.0	0.28
<500	424	38.2	61.8			
Lowest CD4 Count ever						
<500	309	43.0	57.0	1.5	1.0–2.1	0.03
≥500	210	33.8	66.2			

Knowledge about the effectiveness of care and support services, as well as general HIV information, is helpful to PLWHA and guarantees that they reap the benefits of scientific advancements in treatment through adherence (Van Nguyen et al., 2021). However, the participants in this research who could not easily access information about HIV/AIDS care and support services or such information for people with disabilities were less likely to utilize the services. This finding could be taken to suggest that, even in cases where accessibility and coverage are limited, having a thorough knowledge of HIV/AIDS and treatment is essential for clients to make informed decisions, which are closely associated with their HIV/AIDS care and support services utilization.

Nonetheless, the results of this study show that social support levels among HIV/AIDS patients were comparatively low, indicating that access to services was

statistically significantly correlated with finding social service support. This finding is supposed to show how important it is for friends, family, NGOs, and peers to help people get access to HIV/AIDS care and support services. Consistent with the findings of this study, Ethiopian research showed 266 respondents (66.4%) correlated low social support and constrained service accessibility caused by factors like inadequate family and social support, ignorance, being a woman, and a failure to disclose the HIV status (Desalegn et al., 2022). This finding can further be comparable to a finding in Iran stressing that social support is a significant factor in enabling access to HIV/AIDS care and support services (Ghasemi et al., 2022). Therefore, it is vital to consider this to indicate that spouses, families, as well as the community should offer varying levels of support to give PLWHA access to HIV/AIDS treatment and lessen mental health issues like stress, depression, and anxiety.

Table (3): Frequency and percentage distribution of accessibility and availability of HIV care and support services regarding information about HIV health services (n=519).

Variables	No.	%
How often do you visit your clinic?		
One month or less	150	28.9
Two months	85	16.4
4 - 6 months	284	54.7
Which mode of transport do you use when going to the clinic		
Walking	42	8.1
Boda Boda	186	35.8
Vehicle	291	56.1
Mean travel time in hours±SD	1.25±1.01	
Travel time range	0.08–8.00	
How easy is it to obtain care services		
Very difficult	278	53.5
Somewhat difficult	79	15.2
Somewhat easy	28	5.5
Very easy	134	25.8
Getting information about HIV care and support services		
Easy to find		
Yes	463	89.2
No	48	9.2
Unsure	8	1.5
Easily accessible		
Yes	412	79.4
No	86	16.6
Unsure	21	4.0
For people with disabilities		
Yes	193	37.2
No	246	47.4
Unsure	80	15.4
Easy to understand		
Yes	373	71.9
No	132	25.4
Unsure	14	2.7
Useful		
Yes	471	90.7
No	35	6.7
Unsure	13	2.5
Transparent on the financial costs (out-of-pocket costs)		
Yes	251	48.4
No	154	29.7
Unsure	114	22.0

Furthermore, the study found that more than two-thirds of participants living far from facilities struggled to access HIV care and support services, and more than one-third had to travel to different towns. This finding might be due to people's difficulty traveling to medical facilities. However, this study differs from a previous one that found proximity to health facilities does not guarantee the use of HIV care and treatment services, as clients may seek privacy and secluded places to access the services (Mulubale et al., 2022).

The higher cost of travel and out-of-pocket expenses were the other major barriers to accessing HIV care and treatment. Likewise, a scoping review of available literature concurs with other research demonstrating that poor socioeconomic status and rural residence are the main factors influencing out-of-pocket expenses in Tanzania. Because patients are less likely to seek medical attention unless they are in immediate need, the cost of services increases

(Mnzava et al., 2018). Given these circumstances, the idea of resilience and coping struck a chord with the PLWHA participants, who should express their independence and high level of self-efficacy in accessing HIV/AIDS care and support services.

Social stigma is another major barrier to access to HIV care and support services (Reif et al., 2019; Van Der Kooij et al., 2021). This study found that most participants blamed stigma and not being able to accept their HIV-positive status as reasons for not seeking HIV care and treatment. Besides, fears of the stigma associated with accessing HIV care had a borderline statistically significant association among those who agreed that fears of how other people respond when attending clinics make them hesitate to get care services. These findings are comparable with those of a study conducted in Atlanta and Macon, Georgia, which reported that stigma contributed to treatment non-adherence through increased medication concerns (Camacho et al., 2020).

Table (4): Frequency and percentage distribution of experienced delays in accessing the following HIV health care services (n=519).

Variable	No.	%
HIV medicines		
Yes	99	19.1
No	409	78.8
Unsure	11	2.1
Treatment interventions, surgery, or other procedures		
Yes	158	30.4
No	175	33.7
Unsure	186	35.8
A test		
Yes	114	22.0
No	374	72.1
Unsure	31	6.0
An appointment with a doctor/nurse		
Yes	103	19.8
No	382	73.6
Unsure	34	6.6
Appointment with specialist		
Yes	170	32.8
No	184	35.4
Unsure	165	31.8
Help support from social services		
Yes	215	41.4
No	193	37.2
Unsure	111	21.4
I need the following when seeking HIV care and treatment:		
I need to go to another town to get the service I need		
Yes	206	39.7
No	313	60.3
I need to go to another region for service. I need		
Yes	118	22.7
No	401	77.3
A mobile clinic to help you access health care services remotely		
Yes	225	43.4
No	294	56.6
Transportation		
Yes	249	48.0
No	270	52.0

Besides, a recent study in the USA established that HIV Stigma had a strong association with HIV treatment behavior and outcome (Yigit *et al.*, 2020). Given the various dimensions of stigma observed, the true lesson here is that counseling, being mindful of how we talk to PLWHA, and correcting misconceptions about HIV treatment is essential to overcome the stigma and increase accessibility to services.

Mobile clinics' primary goal is enhancing access to healthcare (Du Mortier & Coninx, 2007). Though their application in the HIV field has been mainly restricted to HIV testing and counseling services, mobile health clinics have been utilized less frequently to provide HIV care. Notwithstanding, the study's findings show that 43.4% of participants felt that a mobile clinic would enable patients to receive HIV/AIDS care remotely. This finding could indicate that mobile health clinics may be an unseen force in providing healthcare to underprivileged and vulnerable groups. Furthermore, it might be a creative way to keep

people living with HIV/AIDS (PLWHA) who need care and re-engage them.

Contrary to that, the challenges and barriers associated with being seen or possibly recognized at an HIV/AIDS treatment center and unfamiliar service providers operating the unit were among the reasons given by study participants in Atlanta, Georgia, for their concerns about trusting a mobile HIV treatment unit (Henkhaus *et al.*, 2021). However, the results of this study are consistent with those of another, which demonstrates that mobile clinics offer better HIV/AIDS patients in vulnerable, conflict-affected areas with a sustainable alternative to traditional primary healthcare services, guaranteeing continuity of care and treatment (Omam *et al.*, 2021). Even though there have been reports that they are costly, logistically difficult, unsuitable for treating chronic illnesses, and may only provide limited coverage for treating acute illnesses, other experts suggest mobile clinics be used as a "last resort" to reach people who are not able to access healthcare (McGowan *et al.*, 2020).

Table (5): Influence of accessibility and availability of HIV/AIDS care and support services on utilization of the services among HIV-infected adults (n=519).

Variable	n	Utilization of HIV Services		OR	95% CI	P-value
		Yes	No			
How often do you visit your clinic?						
≤1 month	150	54.7	45.3	2.4	1.6–3.6	<0.0001
Two months or more	369	33.1	66.9			
How easy is it to obtain care services						
Very difficult	357	31.4	68.6	0.3	0.2–0.5	<0.0001
Very easy	162	56.8	43.2			
Information about HIV healthcare services						
Easy to find						
Yes	463	39.2	60.8	0.4	0.3–0.6	<0.0001
No	56	32.3	67.7			
Easily accessible						
Yes	412	34.9	65.1	0.4	0.3–0.6	<0.0001
No	107	56.1	43.9			
For people with disabilities						
Yes	193	32.6	67.4	0.6	0.4–0.9	0.002
No	326	43.2	56.8			
Easy to understand						
Yes	373	63.0	37.0	0.2	0.2–0.5	<0.01
No	146	24.7	75.3			
Useful						
Yes	471	69.5	30.5	5.0	3.1–8.0	<0.0001
No	48	30.8	69.2			
Transparent on the financial costs						
Yes	251	42.3	57.7	0.4	0.4–0.9	<0.03
No	268	45.2	54.8			
In the past six months, I experienced delays in accessing the following HIV healthcare services:						
HIV medicines						
Yes	99	61.6	38.4	3.1	2.0–4.9	<0.0001
No	420	34.1	65.9			
Treatment interventions, surgery, or other procedures						
Yes	158	54.4	45.6	2.4	1.7–3.6	<0.0001
No	361	32.7	67.3			
A test						
Yes	114	51.7	48.3	1.9	1.3–2.9	0.002
No	405	35.8	64.2			
An appointment with a doctor/nurse						
Yes	103	69.9	30.1	5.0	3.1–8.0	<0.0001
No	416	31.7	68.3			
Appointment with specialist						
Yes	170	54.7	45.3	2.6	1.8–3.8	<0.0001
No	349	31.8	68.2			
Help support from social services.						
Yes	215	52.1	47.9	2.5	1.7–3.6	<0.0001
No	304	30.3	69.7			
I need to go to another town to get the service I need						
Yes	206	45.1	54.9	1.5	1.0–2.1	0.03
No	313	35.5	64.5			
I need to go to another county to get the service I need						
Yes	118	53.4	46.6	2.1	1.4–3.2	0.0004
No	401	35.2	64.8			

Table (6): Association between stigma and utilization of HIV/AIDS care and support services (n=519).

Variables	n	Utilization of HIV Services		OR	95% CI	P-value
		Yes	No			
People with HIV feel ashamed of themselves to attend care clinics.						
Agree	309	30.7	69.3	0.4	0.3–0.6	<0.0001
Disagree	210	51.9	48.1			
People think that having HIV is shameful and should not be associated.						
Agree	214	28.0	72.0	0.4	0.3–0.6	<0.0001
Disagree	305	47.2	52.8			
Fears of how other people respond when attending the clinic make one hesitate to get care services.						
Agree	276	35.5	64.5	0.7	0.5–1.0	0.06
Disagree	243	43.6	56.4			
People talk badly when one is enrolled in care treatment.						
Agree	216	35.2	64.8	0.7	0.5–1.1	0.10
Disagree	303	42.2	57.7			

Access to dependable transportation is another social determinant of healthcare that is essential for HIV/AIDS disease management but is commonly disregarded (Pope *et al.*, 2022). Equally, the physical accessibility of HIV/AIDS Comprehensive Care Centers has a significant impact on the accessibility of HIV care services for individuals living with HIV/AIDS. Nonetheless, according to the study's findings, the majority of the participants needed transportation to the facilities: vehicles (public service or private) and motorcycles “(Bodaboda)”. Besides, some participants had to endure lengthy commutes to clinics without access to reliable transportation. Notably, most clients have a higher burden of travel for health care when measured by distance and time traveled. This burden needs alternatives for providing HIV care and support services.

Contrary to a study in Rural South Africa, participants who are HIV/AIDS positive would be willing to bear the expense of longer clinic commutes in order to remain anonymous and reduce their exposure to stigma from other members of the community (Mee *et al.*, 2020). Another study conducted in the same area in 2015 found that transportation costs were correlated with travel distance and significant contributor to the total financial burden for people seeking treatment for HIV/AIDS (Chimbindi *et al.*, 2015). Equally, barriers related to transportation, such as high transportation costs and difficulty finding stable and reliable transportation, are also frequently mentioned (Mee *et al.*, 2020). Hence, transportation assistance is often required for individuals who lack the means to drive, lack easy access to public transportation, or cannot afford it, making it a significant barrier to care.

7. Conclusion

This study highlighted optimizing location, economic conditions, community involvement, social networks, and family support systems as access factors that influence the utilization of HIV care. On the contrary, stigma, lack of information, residing in rural areas, and higher transport costs hinder HIV/AIDS care utilization.

8. Recommendations

The study suggests that HIV/AIDS care service providers and stakeholders should make provisions to review and manage patients from their local clinics or use a mobile

unit to alleviate barriers to the high cost of accessing HIV care services. Also, create support programs to address any access issues that particular people may have, like access to information and higher transport costs.

Suggestions for further research: Research on location optimization for better accessibility of HIV/AIDS care and support services need to address the issues raised by the study.

9. References

- Ahmed, A., Dujaili, J. A., Jabeen, M., Umair, M. M., Chuah, L. H., Hashmi, F. K., Awaisu, A., & Chaiyakunapruk, N. (2022). Barriers and enablers for adherence to antiretroviral therapy among people living with HIV/AIDS in the era of COVID-19: A qualitative study from Pakistan. *Frontiers in Pharmacology*, *12*, 807446. <https://doi.org/10.3389/fphar.2021.807446>.
- Azia, I. N., Nyembezi, A., Carelse, S., & Mukumbang, F. C. (2023). Understanding the role of religious beliefs in adherence to antiretroviral therapy among Pentecostal Christians living with HIV in sub-Saharan Africa: A scoping review. *BMC Public Health*, *23*(1), 1768. doi:10.1186/s12889-023-16616-5.
- Baguso, G. N., Turner, C. M., Santos, G. M., Raymond, H. F., Dawson-Rose, C., Lin, J., & Wilson, E. C. (2019). Successes and final challenges along the HIV care continuum with transwomen in San Francisco. *Journal of the International AIDS Society*, *22*(4), e25270. <https://doi.org/10.1002/jia2.25270>.
- Baringo County HIV And AIDS Strategic Plan (BCASP), 2015 – 2019 (2023). Re-orienting HIV and AIDS response in a devolved system of government: Retrieved from <https://nacc.or.ke/county-aids-strategic-plans-casps/>.
- Bor, J., Gage, A., Onoya, D., Maskew, M., Tripodis, Y., Fox, M. P., Puren, A., Carmona, S., Milsana, K., & MacLeod, W. (2021). Variation in HIV care and treatment outcomes by facility in South Africa, 2011–2015: A cohort study. *PLoS Medicine*, *18*(3), e1003479. <https://doi.org/10.1371/journal.pmed.1003479>.
- Camacho, G., Kalichman, S., & Katner, H. (2020). Anticipated HIV-related stigma and HIV treatment adherence: The indirect effect of medication concerns. *AIDS*

- and *Behavior*, 24(1), 185-191. <https://doi.org/10.1007/s10461-019-02644-z>.
- Castel, A. D., Tang, W., Peterson, J., Mikre, M., Parenti, D., Elion, R., Wood, A., Kuo, I., Willis, S., Allen, S., Kulie, P., Ikwemesi, I., Dassie, K., Dunning, J., Saafir-Callaway, B., & Greenberg, A. (2015).** Sorting through the lost and found: Are patient perceptions of engagement in care consistent with a standard continuum of care measures? *Journal of Acquired Immune Deficiency Syndromes (1999)*, 69 Suppl 1(01), S44-S55. <https://doi.org/10.1097/qai.0000000000000575>.
- Chimbindi, N., Bor, J., Newell, M.-L., Tanser, F., Baltussen, R., Hontelez, J., de Vlas, S., Lurie, M., Pillay, D., Bärnighausen, T. (2015).** Time and money: The true costs of health care utilization for patients receiving “free” HIV/tuberculosis care and treatment in rural KwaZulu-Natal. *JAIDS Journal of Acquired Immune Deficiency Syndromes*, 70(2), e52-e60. <https://doi.org/10.1097/qai.0000000000000728>.
- Dear, N., Esber, A., Iroezindu, M., Bahemana, E., Kibuuka, H., Maswai, J. Owuoth, J., Polyak, C.S., Ake, J. A., & Crowell, T. A. (2022).** Routine HIV clinic visit adherence in the African Cohort Study. *AIDS Research and Therapy*, 19(1), 1. <https://doi.org/10.1186/s12981-021-00425-0>.
- Desalegn, M., Gutama, T., Merdassa, E., Kejela, G., & Benti, W. (2022).** Family and social support among patients on antiretroviral therapy in West Wollega Zone Public Hospitals, Western Ethiopia: A facility-based cross-sectional study. *HIV/AIDS-Research and Palliative Care*, 14, 167-179. <https://doi.org/10.2147/hiv.s360431>.
- Du Mortier, S., & Coninx, R. (2007).** Mobile health units in emergency operations: A methodological approach: Humanitarian Practice Network, Overseas Development Inst. Available at: <https://odihpn.org/publication/mobile-health-units-in-emergency-operations-a-methodological-approach/>
- Ghasemi, E., Rajabi, F., Majdzadeh, R., Vedadhir, A., & Negarandeh, R. (2022).** Aspects influencing access to HIV/AIDS services among Afghan immigrants in Iran: A qualitative study. *International Journal of Community Based Nursing and Midwifery*, 10(3), 172-183. <https://doi.org/10.30476/IJCBNM.2021.91724.1805>.
- Henkhaus, M. E., Hussen, S. A., Brown, D. N., Del Rio, C., Fletcher, M. R., Jones, M. D., Jones, M. D., Marellapudi, A., & Kalokhe, A. S. (2021).** Barriers and facilitators to use of a mobile HIV care model to re-engage and retain out-of-care people living with HIV in Atlanta, Georgia. *PloS One*, 16(3), e0247328. <https://doi.org/10.1371/journal.pone.0247328>.
- HIV.gov. (2022).** HIV Care and Treatment Activities. Retrieved from <https://www.hiv.gov/federal-response/federal-activities-agencies/hiv-care-and-treatment-activities/>.
- Kasahun, A. E., Sendekie, A. K., Mekonnen, G. A., Sema, F. D., Kemal, L. K., & Abebe, R. B. (2022).** Impact of personal, cultural and religious beliefs on medication adherence among patients with chronic diseases at University Hospital in Northwest Ethiopia. *Patient Preference and Adherence*, 16, 1787-1803. <https://doi.org/10.2147/ppa.s370178>.
- Kiprutto, N., Akama, J., & Sitati, N. (2007).** Marketing of the North Rift region as a tourist destination in Kenya. Unpublished Master’s Thesis. Department of Tourism and Tour Operations Management, Moi University, Kenya.
- McGowan, C. R., Baxter, L., Deola, C., Gayford, M., Marston, C., Cummings, R., & Checchi, F. (2020).** Mobile clinics in humanitarian emergencies: A systematic review. *Conflict and Health*, 14(4), 1–10. <https://doi.org/10.1186/s13031-020-0251-8>
- Mee, P., Rice, B., Kabudula, C. W., Tollman, S. M., Gómez-Olivé, F. X., & Reniers, G. (2020).** The impact of HIV status on the distance traveled to health facilities and adherence to care. A record-linkage study from rural South Africa. *Journal of Global Health*, 10(2). <https://doi.org/10.7189/jogh.10.020435>.
- Meka, A. F. Z., Billong, S. C., Diallo, I., Tiemtore, O. W., Bongwong, B., & Nguefack-Tsague, G. (2020).** Challenges and barriers to HIV service uptake and delivery along the HIV care cascade in Cameroon. *Pan African Medical Journal*, 36(1), 37. <https://doi.org/10.11604/pamj.2020.36.37.19046>.
- Mnzava, T., Mmari, E., & Berruti, A. (2018).** Drivers of patient costs in accessing HIV/AIDS services in Tanzania. *Journal of the International Association of Providers of AIDS Care (JIAPAC)*, 17, 2325958218774775. <https://doi.org/10.1177/2325958218774775>.
- Mulubale, S., Clay, S., Squire, C., Bond, V., Kasoka, K., Stackpool-Moore, L., Oraro-Lawrence, T., Chonta, M., & Chiiya, C. (2022).** Situating HIV stigma in health facility settings: A qualitative study of experiences and perceptions of stigma in ‘clinics’ among healthcare workers and service users in Zambia. *Journal of the International Association of Providers of AIDS Care (JIAPAC)*, 21, 23259582221100453. <https://doi.org/10.1177/23259582221100453>.
- Mutasa-Apollo, T., Ford, N., Wiens, M., Socias, M. E., Negussie, E., Wu, P., Popoff, E., Park, J., Mills, E. J., & Kanters, S. (2017).** Effect of frequency of clinic visits and medication pick-up on antiretroviral treatment outcomes: A systematic literature review and meta-analysis. *Journal of the International AIDS Society*, 20(Suppl 4), 21647. <https://doi.org/10.7448/ias.20.5.21647>.
- National AIDS Control Council (2018).** Kenya HIV Estimates: Report 2018. Retrieved from <https://nsdcc.go.ke/wp-content/uploads/2018/12/HIV-estimates-report-Kenya-20182.pdf>.
- National Aids Control Council (2020).** Kenya AIDS Strategic Framework II 2020/21-2024/25: Sustain Gains, Bridge Gaps and Accelerate Progress. Retrieved from https://nsdcc.go.ke/wp-content/uploads/2021/01/KASFII_Web22.pdf.

- National AIDS & STI Control Programme (NASCO) (2022). Kenya HIV prevention and treatment Guidelines, 2022. Retrieved from <https://www.differentiatedservicedelivery.org/wp-content/uploads/Kenya-ARV-Guidelines-2022-Final-1.pdf>.
- Nega, J., Taye, S., Million, Y., Rodrigo, C., & Eshetie, S. (2020). Antiretroviral treatment failure and associated factors among HIV patients on first-line antiretroviral treatment in Sekota, Northeast Ethiopia. *AIDS Research and Therapy*, 17(1), 39. <https://doi.org/10.1186/s12981-020-00294-z>.
- Office of the Governor County Government of Baringo (2018). County Integrated Development Plan 2018 – 2022: "Transformational agenda for the People of Baringo County through focused investment in all sectors of the Economy." Retrieved from <https://www.devolution.go.ke/wp-content/uploads/2020/02/Baringo-CIDP-2018-2022.pdf>
- Office of the Governor County Government of Baringo (2023). *Baringo County Integrated Development Plan (2023-2027): Delivering as One to transform the lives of the people of Baringo to the highest standard of living*. Retrieved from <https://repository.kippra.or.ke/bitstream/handle/123456789/4385/baringo%20-CIDP-2023-2027.pdf?sequence=1&isAllowed=y>
- Oktavia, R., Irwandi, Rajibussalim, Mentari, M., & Mulia, I. S. (2018). Assessing the validity and reliability of questionnaires on the implementation of Indonesian curriculum K-13 in STEM education. Paper presented at the Journal of Physics: Conference series. 1088 012014. <https://doi.org/10.1088/1742-6596/1088/1/012014>.
- Omam, L.-A., Jarman, E., Ekokobe, W., Evon, A., & Omam, E. N. (2021). Mobile clinics in conflict-affected communities of North West and South West regions of Cameroon: An alternative option for differentiated delivery service for internally displaced persons during COVID-19. *Conflict and Health*, 15(90), 1-9. <https://doi.org/10.1186/s13031-021-00427-9>.
- Pope, C. N., Stavrinou, D., Fazeli, P. L., & Vance, D. E. (2022). Transportation barriers and health-related quality of life in a sample of middle-aged and older adults living with HIV in the Deep South. *AIDS and Behavior*, 26(7), 2148-2158. <https://doi.org/10.1007/s10461-021-03560-x>.
- Reif, S., Wilson, E., McAllister, C., & Pence, B. (2019). The relationship of HIV-related stigma and health care outcomes in the US Deep South. *AIDS and Behavior*, 23(Suppl 3), 242–250. <https://doi.org/10.1007/s10461-019-02595-5>.
- Sanga, E. S., Mukumbang, F. C., Mushi, A. K., Lerebo, W., & Zarowsky, C. (2019). Understanding factors influencing linkage to HIV care in a rural setting, Mbeya, Tanzania: Qualitative findings of a mixed methods study. *BMC Public Health*, 19(1), 383. <https://doi.org/10.1186/s12889-019-6691-7>.
- UNAIDS. (2015). Understanding fast-track: Accelerating action to end the AIDS epidemic by 2030. UNAIDS Geneva. Retrieved from https://www.unaids.org/en/resources/documents/2015/201506_JC2743_Understanding_FastTrack.
- UNAIDS. (2023a). Fact sheet- Latest global and regional statistics on the status of the AIDS epidemic. Global HIV Statistics. Retrieved from https://www.unaids.org/sites/default/files/media_asset/UNAIDS_FactSheet_en.pdf.
- UNAIDS. (2023b). Global HIV & AIDS statistics - Fact sheet Retrieved from <https://www.unaids.org/en/resources/fact-sheet>.
- Van Der Kooij, Y. L., Kupková, A., den Daas, C., van den Berk, G. E. L., Kleene, M. J. T., Jansen, H. S. E., Elsenburg, L. J. M., Schenk, L. G., Verboon, P., Brinkman, K., Bos, A. E. R., & Stutterheim, S. E. (2021). Role of self-stigma in pathways from HIV-related stigma to quality of life among people living with HIV. *AIDS patient care and STDs*, 35(6), 231-238. <https://doi.org/10.1089/apc.2020.0236>.
- Van Nguyen, L., Nguyen, T. N. P., Thach, A. N., Lam, A. N., Lam, D. Q., Duong, C. X., Pham, S.T., Nguyen, T.H., Perwitasari, D.A., Taxis, K., Nguyen, P. M., & Nguyen, T. (2021). Knowledge of antiretroviral treatment and associated factors in HIV-infected patients. <https://doi.org/10.3390/healthcare9040483>.
- Waithaka, S. K., Njagi, E. N. M., Ngeranwa, J. J. N., Mwangi, D. M., Chiuri, B. M., Njagi, L. J., & Gatua, W. K. (2010). Quantitative Reference Ranges for Fasting Profiles and Oral Glucose Tolerance Test for Healthy Adults in Metropolitan Region of Nairobi, Kenya. *International Journal of Health Research*, 3(1), 13-19. <https://doi.org/10.4314/ijhr.v3i1.70264>.
- World Health Organization (WHO). (2023). HIV and AIDS. Retrieved from https://www.who.int/news-room/fact-sheets/detail/hiv-aids?gclid=CjwKCAjw-KipBhBtEiwAWjgwrMJK_J0imUQf9qFbqWvtgmHYkLiA-8P2LQdtaEV_8oWHwIWL8pVBJxoCnywQAvD_BwE.
- Yigit, I., Modi, R. A., Weiser, S. D., Johnson, M. O., Mugavero, M. J., Turan, J. M., & Turan, B. (2020). Effects of an intervention on internalized HIV-related stigma for individuals newly entering HIV care. *AIDS (London, England)*, 34(Suppl 1), S73-S82. <https://doi.org/10.1097/qad.0000000000002566>.
- Yonga, P., Kalya, S., Lynen, L., & Decroo, T. (2020). Temporary disengagement and re-engagement in human immunodeficiency virus care in a rural county serving pastoralist communities in Kenya: A retrospective cohort study. *International Health*, 12(2), 95-100. <https://doi.org/10.1093/inthealth/ihz049>.
- Zegeye, B., Anyiam, F. E., Ahinkorah, B. O., Ameyaw, E. K., Budu, E., Seidu, A.-A., & Yaya, S. (2022). Women's decision-making capacity and its association with comprehensive knowledge of HIV/AIDS in 23 sub-Saharan African countries. *Archives of Public Health*, 80(1), 111. <https://doi.org/10.1186/s13690-022-00849-8>.