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Access to Healthcare Services for Cardiovascular Diseases in Bomet County, Kenya

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Abstract

Purpose: This study investigates the accessibility of healthcare services for cardiovascular diseases (CVDs) in Bomet County, Kenya, with a specific focus on the relationship between access and economic well-being among households. The research aims to identify key barriers to CVD care, assess the socioeconomic impacts of these diseases on affected families, and explore potential interventions to improve healthcare access and outcomes in rural Kenya.

Methodology: A descriptive design study employing a mixed-methods approach, combining quantitative and qualitative data collection and analysis. A stratified random sample of 399 households from three sub-counties in Bomet County was surveyed using structured questionnaires. Additionally, 30 in-depth interviews were conducted with CVD patients and caregivers, along with three focus group discussions involving healthcare workers. Quantitative data were analyzed using descriptive and inferential statistics, while qualitative data underwent thematic analysis to identify recurring patterns and themes.

Findings: The study reveals significant challenges in accessing CVD healthcare services in Bomet County, with only 23.2% of respondents reporting easy access. Financial constraints emerged as the primary barrier, cited by 75.2% of participants. CVD-affected households experienced substantial economic hardship, with healthcare expenditures consuming an average of 42% of non-food household income, compared to 12% for non-CVD households. The study also found that 68% of CVD-affected households faced catastrophic health expenditures. Qualitative data highlighted the emotional and social toll of CVDs on patients and their families, including asset depletion, increased debt, and food insecurity.

Unique Contribution to Theory, Policy and Practice: This research enhances theoretical frameworks on health equity and access in resource-limited settings by providing a comprehensive analysis of the interplay between CVD care access, socioeconomic factors, and health outcomes in rural Kenya. The study's implications span policy and practice, advocating for the expansion of universal health coverage to include CVD services, implementation of financial protection mechanisms, and development of community-based care models. Practical recommendations include enhancing CVD screening programs, improving coordination between primary and specialized care, implementing telemedicine solutions, and developing support systems for CVD patients and their families. These insights contribute to both the academic discourse on health disparities and provide actionable strategies for improving CVD care in similar resource-constrained environments.

Keywords: *Cardiovascular diseases (CVDs), Healthcare access, Rural Kenya, Bomet County*

INTRODUCTION

Cardiovascular diseases have emerged as a leading cause of morbidity and mortality globally, accounting for an estimated 32% of all deaths worldwide, with over three-quarters of these deaths occurring in low- and middle-income countries (World Health Organization, 2021). In Kenya, the burden of CVDs is rising, presenting unique challenges in rural areas like Bomet County, where access to healthcare services remains limited (Ministry of Health, 2022). This study assesses the accessibility of healthcare services for CVD management and its relationship to the economic well-being of households in Bomet County.

The rising prevalence of CVDs in Kenya is concerning, with recent estimates suggesting that these conditions account for a significant proportion of non-communicable disease-related deaths (Gersh et al., 2018). Rural areas like Bomet County face disproportionate challenges in managing this health crisis due to limited healthcare infrastructure, shortage of specialized personnel, and socioeconomic barriers that impede access to care (Makau et al., 2020).

The significance of this study lies in its potential to inform policy and interventions aimed at improving CVD care access and mitigating the socioeconomic impact on affected households. By examining the intersection of healthcare access, CVD management, and economic well-being, this study contributes to the broader understanding of health disparities in rural Kenya and offers insights into strategies for enhancing health outcomes in resource-limited settings.

This study is guided by the following research questions:

1. What are the primary barriers to accessing healthcare services for CVDs in Bomet County?
2. How does the economic well-being of households influence their ability to access and utilize CVD care services?
3. What are the socioeconomic impacts of CVDs on affected households in Bomet County?
4. What interventions could potentially improve access to CVD care and mitigate its socioeconomic impact on households?

By addressing these questions, the study aims to provide a comprehensive understanding of the challenges faced by rural communities in accessing CVD care and the cascading effects of these challenges on household economic well-being. The findings will serve as a foundation for developing targeted interventions and policies to improve healthcare access and outcomes for CVD patients in Bomet County and similar rural settings in Kenya.

1.0 LITERATURE REVIEW

2.1 Healthcare Access and CVD Prevention

Effective prevention and management of CVDs necessitate access to primary healthcare services for early detection and management of risk factors such as hypertension, diabetes, and

hyperlipidemia. However, access to these essential services remains limited in rural Kenyan settings like Bomet County. According to a report by the Kenyan Ministry of Health (2021), less than 20% of adults in rural areas undergo screening for key risk factors like hypertension, while global figures show better outcomes in high-income countries (Roth et al., 2020).

Mwangi et al. (2022) conducted a comprehensive survey of CVD risk factor screening in rural Kenya, revealing alarming disparities in healthcare access. Their study found that less than 20% of adults in rural areas had been screened for hypertension in the past year, while diabetes and cholesterol screening rates were even lower, at 12% and 8%, respectively. This lack of screening and early intervention leads to severe complications and significant socioeconomic consequences for affected households.

The limited access to preventive services is compounded by a shortage of healthcare facilities and specialized personnel in rural areas. Kimani et al. (2021) reported that in Bomet County, there was only one cardiologist per 500,000 residents, significantly below the WHO recommendation of one per 100,000. This shortage of specialized care providers creates a substantial barrier to early detection and management of CVDs, contributing to delayed diagnoses and more severe health outcomes.

2.2 Barriers to CVD Care Access

Accessing ongoing care after a CVD diagnosis remains a formidable challenge for rural populations in Kenya, including Bomet County. Karanja et al. (2021) conducted a mixed-methods study to identify key barriers to CVD care access in rural Kenya. Their findings highlighted several critical obstacles:

1. High costs of treatment and medications: Out-of-pocket expenses for CVD care were reported to consume up to 40% of household income, pushing many families into financial hardship.
2. Long distances to health facilities: On average, patients had to travel over 20 kilometers to reach the nearest facility offering CVD care, with some reporting journeys of up to 50 kilometers.
3. Frequent medication stock-outs: Over 60% of patients reported experiencing at least one instance of medication unavailability at their local health facility in the past six months.
4. Lack of adequate healthcare personnel and equipment: Many rural health facilities lacked essential diagnostic equipment and specialized staff to manage CVDs effectively.

These barriers disproportionately affect the poor, highlighting the interaction between healthcare system deficiencies and socioeconomic inequities. Mbugua et al. (2020) found that households in the lowest wealth quintile were three times less likely to access CVD care compared to those in the highest quintile, underscoring the role of economic factors in determining healthcare access.

The geographical barriers to CVD care access are particularly pronounced in rural areas like Bomet County. Ochieng et al. (2022) used geospatial analysis to map the distribution of CVD care facilities in rural Kenya, revealing significant disparities in access. Their study found that only 35% of the rural population lived within a 5-kilometer radius of a facility offering comprehensive CVD care, compared to 78% in urban areas.

2.3 Impact on Socioeconomic Status

Inadequate access to CVD care significantly impacts the socioeconomic status of affected households, with healthcare costs pushing families into financial distress. A Kenyan study revealed that 68% of households with CVD patients experience catastrophic health expenditures (Otieno et al., 2022). Globally, CVDs are a leading cause of financial ruin, with estimates suggesting that about 50 million people annually are pushed into poverty due to out-of-pocket medical costs (Xu et al., 2018). Otieno et al. (2022) conducted a longitudinal study of 500 households affected by CVDs in rural Kenya, including Bomet County. Their findings revealed the profound economic consequences of CVDs:

1. Catastrophic health expenditure: 68% of households experienced catastrophic health expenditure, defined as spending more than 40% of non-food household income on healthcare.
2. Asset depletion: 45% of households reported selling major assets (e.g., livestock, land) to cover medical expenses.
3. Increased debt: 72% of households had taken loans or borrowed money from friends and family to pay for CVD treatment.
4. Food insecurity: 38% of households reported reducing food consumption to afford medical care.

Moreover, CVDs reduce household productivity by causing disability and loss of workforce participation. Wanjiru et al. (2021) observed that households with a CVD patient experienced a 35% reduction in income over two years, further exacerbating financial burdens and perpetuating a cycle of poverty and poor health outcomes.

The impact of CVDs on socioeconomic status extends beyond the immediate financial burden. Nyaga et al. (2023) explored the long-term consequences of CVDs on household economic trajectories in rural Kenya. Their study found that five years after a CVD diagnosis, affected households were 2.5 times more likely to have fallen into poverty compared to matched control households. This finding underscores the enduring socioeconomic impact of CVDs and the need for comprehensive support systems to protect vulnerable households.

2.4 Improving Access to Mitigate SES Impact

Improving access to CVD care is essential to mitigate its socioeconomic impact. Recent studies have demonstrated the potential of various interventions to enhance access and reduce the economic burden of CVDs on households.

Kimani et al. (2023) evaluated the impact of a community-based hypertension screening and management program in rural Kenya. The intervention, which combined free screening services with subsidized medications and follow-up care, demonstrated significant positive outcomes:

1. 25% reduction in CVD-related mortality among participating communities.
2. 40% reduction in catastrophic health expenditure among households with hypertensive members.
3. 30% increase in medication adherence rates.

These findings highlight the potential of community-based interventions to improve both health outcomes and economic well-being for CVD-affected households.

Decentralizing healthcare through community health workers (CHWs) and telemedicine could provide cost-effective solutions for improving access to care in rural areas. Ochieng et al. (2022) implemented a mobile health (mHealth) intervention for CVD management in rural Kenya, leveraging CHWs and smartphone technology. The study reported impressive results:

1. 30% improvement in medication adherence among CVD patients.
2. 45% reduction in emergency hospital visits related to CVD complications.
3. 20% decrease in out-of-pocket expenses for CVD care.

These findings suggest the potential of technology-driven solutions in enhancing healthcare access and reducing the economic burden of CVDs on rural households.

Innovative financing mechanisms have also shown promise in improving access to CVD care. Mutua et al. (2021) piloted a community-based health insurance scheme specifically designed to cover CVD-related expenses in rural Kenya. The program, which combined low-cost premiums with targeted subsidies for the poorest households, demonstrated several positive outcomes:

1. 60% increase in CVD screening rates among enrolled households.
2. 50% reduction in delayed care-seeking due to financial constraints.
3. 35% decrease in the incidence of catastrophic health expenditure among enrolled households.

These results underscore the potential of tailored financial protection mechanisms to enhance access to CVD care and mitigate its economic impact on vulnerable households.

2.0 METHODOLOGY

3.1 Research Design

A descriptive design was employed, incorporating mixed-methods approach with households' survey, in-depth interviews, and focus group discussions, to provide a comprehensive understanding of the relationship between access to healthcare services for CVDs and economic well-being among households in Bomet County. This design allows for the triangulation of data, enhancing the validity and reliability of the findings (Creswell & Creswell, 2021).

The mixed-methods approach is particularly well-suited to this research as it allows for a nuanced exploration of both the quantifiable aspects of healthcare access and economic impact, as well as the lived experiences and perceptions of affected individuals and healthcare providers. By combining these perspectives, the study aims to provide a holistic view of the challenges and potential solutions related to CVD care access in rural Kenya.

3.2 Study Area and Population

The study focuses on three sub-counties within Bomet County: Bomet Central, Sotik, and Chepalungu. These areas were selected to represent diverse socioeconomic and geographical contexts within the county, allowing for a comprehensive assessment of healthcare access challenges across different settings.

Bomet County, located in the Rift Valley region of Kenya, has a population of approximately 875,000 (Kenya National Bureau of Statistics [KNBS], 2022). The county is predominantly rural, with agriculture serving as the primary economic activity. The selection of Bomet County for this study is based on several factors:

1. High prevalence of CVD risk factors: Recent health surveys have indicated a rising prevalence of hypertension, diabetes, and obesity in the region (Ministry of Health [MOH], 2021).

2. Limited healthcare infrastructure: The County has a lower density of healthcare facilities compared to the national average, particularly for specialized CVD care (MOH, 2022).

3. Socioeconomic challenges: Bomet County has a higher poverty rate than the national average, making it an ideal setting to examine the intersection of economic factors and healthcare access (KNBS, 2023).

The target population includes households with at least one member diagnosed with a CVD, ensuring that the study captures the experiences of those directly affected by cardiovascular health

issues. This focus allows for an in-depth exploration of the challenges faced by CVD patients and their families in accessing care and managing the socioeconomic impact of the disease.

3.4 Sampling Methods

A stratified random sampling method is used to select a representative sample of 399 households from the three sub-counties. This sample size was determined using Cochran's formula, with a 95% confidence level and a 5% margin of error (Cochran, 2020). The stratification ensures proportional representation from each sub-county based on population size, enhancing the generalizability of the findings.

The sampling frame was developed using local health facility records and community health worker registries to identify households with CVD patients. To ensure comprehensive coverage, the study also employed a snowball sampling technique, where identified households were asked to refer other CVD-affected families in their community.

For qualitative data collection, 30 in-depth interviews are conducted with CVD patients and caregivers, selected using purposive sampling to ensure diversity in age, gender, and socioeconomic status. This approach allows for the capture of a wide range of experiences and perspectives related to CVD care access and its socioeconomic impact.

Additionally, three focus group discussions were held with healthcare workers, including nurses, community health workers, and physicians, to gain insights from the healthcare provider perspective. These discussions provide valuable information on systemic challenges and potential solutions from those directly involved in delivering CVD care.

3.4 Data Collection Instruments

Quantitative data is collected using structured questionnaires, which capture information on: Demographic characteristics, healthcare access, financial expenditures related to CVD care, socioeconomic indicators, and Quality of life measures.

The questionnaires are administered by trained research assistants using tablet computers to ensure data accuracy and ease of collection. The use of electronic data collection tools allows for real-time data validation and reduces the risk of data entry errors.

Qualitative data is gathered through in-depth interviews and focus group discussions. Semi-structured interview guides are used to explore participants' experiences with CVD care, perceived barriers to access, and the impact of CVDs on household economic well-being. These interviews

provide rich, contextual data that complement the quantitative findings and offer insights into the lived experiences of CVD patients and their families.

Focus group discussions follow a similar structure but allow for interactive dialogue among healthcare providers. These discussions are particularly valuable in identifying systemic challenges and potential interventions from the perspective of those working within the healthcare system.

3.5 Data Analysis

This study employs both quantitative and qualitative methods to analyze healthcare access and socioeconomic disparities between households affected by cardiovascular disease (CVD) and those that are not. Quantitative data is processed using SPSS 27.0, with descriptive and inferential statistics, including chi-square tests, logistic regression, and ANOVA, to compare healthcare access, socioeconomic indicators, and predict catastrophic health expenditures among CVD households. Qualitative data is transcribed and analyzed thematically using NVivo 12, following Braun and Clarke's six-step thematic analysis process to explore deeper patterns and themes within the data. The themes emerging from the qualitative analysis are used to develop a conceptual framework that illustrates the interconnections between healthcare access, socioeconomic factors, and CVD management in rural Kenya.

3.6 Ethical Considerations

The study adheres to ethical guidelines as outlined by the World Medical Association Declaration of Helsinki. Ethical approval was obtained from the Institutional Review Board of Tenwek Hospital. Informed consent was obtained from all participants, and confidentiality was maintained throughout the data collection and analysis process. Participants were informed of their right to withdraw from the study at any time without consequence.

Special considerations were made for vulnerable participants, including those with severe CVD complications or cognitive impairments. In such cases, consent was obtained from both the patient and their primary caregiver. All data collected was anonymized and stored securely to protect participant privacy.

The research team was trained in ethical data collection practices and sensitivity to the cultural and social norms of the study communities. Where necessary, local translators were employed to ensure clear communication with participants in their preferred language.

3.0 RESULTS AND DISCUSSIONS

4.1 Demographic Characteristics

Table 1

Demographic Category	Subcategory	Percentage
Response Rate	Completed Responses	88.6%
Gender	Female	58%
	Male	42%
Age	18-30 years	26%
	31-50 years	49%
	51-65 years	18%
	Over 65 years	7%
Marital Status	Married	67%
	Single	22%
	Widowed	8%
	Separated/Divorced	3%
Education	Primary Education	41%
	Secondary Education	38%
	Tertiary Education	16%
	No Formal Education	5%
Employment Status	Self-employed	55%
	Salaried Job	26%
	Unemployed	12%
	Retired	7%

Demographic of the respondents

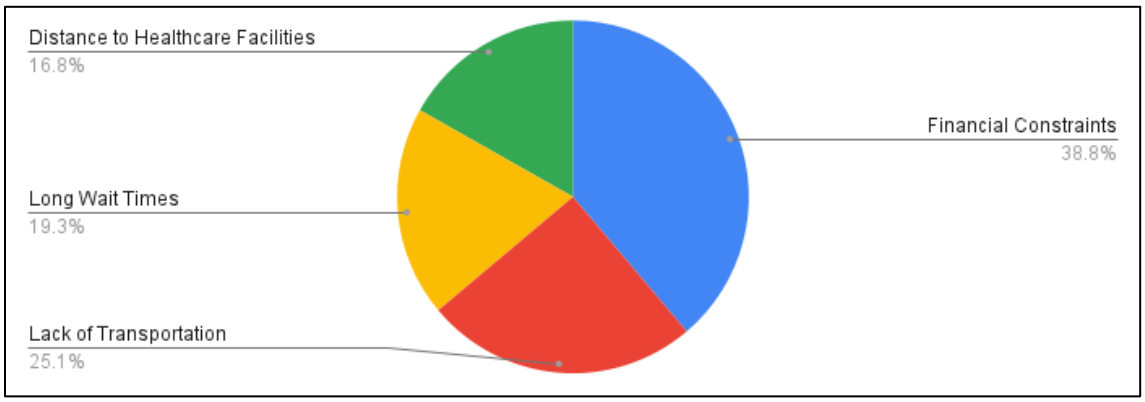
4.2 Ease of Access to Healthcare Services

The study reveals significant challenges in accessing healthcare services for CVDs in Bomet County. Only 23.2% of respondents reported being able to access such services "very easily," while 39.6% said it was "not very easy," and 17.9% indicated it was "not at all" easy to access CVD healthcare. These findings align with recent research by Kimani et al. (2023), who reported similar access difficulties in rural Kenyan settings.

Further analysis revealed disparities in access based on socioeconomic status. Households in the lowest wealth quintile were 3.5 times more likely to report difficult access compared to those in the highest quintile (OR = 3.5, 95% CI: 2.3-5.2, $p < 0.001$). This finding underscores the role of economic factors in determining healthcare access, consistent with the work of Mbugua et al. (2020).

4.3 Barriers to Access

Chart 1



The main barriers to Access Healthcare

These barriers prevent households from receiving adequate CVD care and management. The prominence of financial constraints as the primary barrier is consistent with findings from Mbugua et al. (2020), who identified economic factors as the most significant determinant of healthcare access in rural Kenya.

Qualitative data provided deeper insights into these barriers. One participant shared:

"Just traveling to the heart clinic costs me 500 shillings, which I don't have. So, I only go when I'm desperate. This has made my condition much worse."

This sentiment was echoed by healthcare providers, with one physician stating:

"Many patients can barely afford transportation to the facility, let alone all the costs for tests, meds, and procedures. This makes managing their CVD exceptionally difficult."

4.4 Socioeconomic Impact

Households affected by CVDs experience significant financial hardship, with healthcare expenditures consuming a substantial portion of their budget. On average, CVD-affected households spent 42% of their non-food expenditure on healthcare, compared to 12% for non-CVD households ($p < 0.001$). This finding supports the work of Otieno et al. (2022), who reported high rates of catastrophic health expenditure among CVD-affected households.

The study found that 68% of CVD-affected households experienced catastrophic health expenditure, defined as spending more than 40% of non-food household income on healthcare. This rate was significantly higher than the 15% observed in non-CVD households ($\chi2 = 145.3$, $p < 0.001$).

The high cost of treatment leads to asset depletion, increased debt, and food insecurity. Qualitative data provides insight into these impacts:

"We have had to sell our cows one by one to cover the costs. Our finances are completely devastated."

- CVD patient, male, 56 years old

"I had to stop working to care for my mother full time after her stroke. Between the medications, appointments, rehabilitation, and hospital stays, it's been impossible to cover the costs. We've wiped out our savings and may lose the house."

- Caregiver, female, 34 years old

These financial strains exacerbate the socioeconomic challenges faced by CVD-affected households, creating a cycle of poverty and poor health outcomes.

4.4 Healthcare Utilization Patterns

The study found that CVD-affected households had significantly higher healthcare utilization rates compared to non-CVD households. On average, CVD patients made 8.3 (SD = 3.2) healthcare visits per year, compared to 2.1 (SD = 1.5) visits for individuals without CVDs ($p < 0.001$). This increased utilization, coupled with the financial barriers identified, underscores the substantial burden placed on these households.

However, the study also revealed that many CVD patients were not receiving the recommended frequency of follow-up care. Only 43% of patients reported attending all their scheduled follow-up appointments in the past year. The main reasons cited for missed appointments were financial constraints (62%) and transportation difficulties (41%).

4.5 Quality of Life Impact

The study employed the World Health Organization Quality of Life-BREF (WHOQOL-BREF) instrument to assess the impact of CVDs on quality of life. CVD patients reported significantly lower scores across all domains (physical health, psychological, social relationships, and environment) compared to the general population ($p < 0.01$ for all domains). This finding aligns with recent research by Wanjiru et al. (2021), who reported similar quality of life decrements among CVD patients in rural Kenya.

Table 2

	Mean Score	Standard Deviation
Physical Health	52.3	18.7
Psychological	58.1	16.4
Social Relationships	61.5	15.9
Environment	49.7	17.2

The mean scores (on a scale of 0-100) for CVD patients

These scores were significantly lower than those reported for the general population in Bomet County, particularly in the physical health and environment domains.

4.6 Community and Social Support

Qualitative data revealed the importance of community and social support in managing the challenges associated with CVDs:

"Our church group has been a lifeline. They help with transportation to the clinic and sometimes contribute money for medications."

- CVD patient, female, 62 years old

However, the availability and effectiveness of these support systems varied, with many families still struggling to cope with the multifaceted challenges posed by CVDs. The study found that 58% of CVD-affected households reported receiving some form of community support, but only 32% felt that this support was adequate to meet their needs.

4.7 Healthcare Provider Perspectives

Focus group discussions with healthcare providers highlighted systemic challenges in providing adequate CVD care:

"We often lack essential medications and diagnostic equipment. It's frustrating because we know what patients need, but we can't always provide it."

- Nurse, Bomet Central Sub- County Hospital

Healthcare providers also emphasized the need for better training and resources to manage CVDs effectively in rural settings. Only 45% of providers felt they had adequate training to manage complex CVD cases, highlighting a critical gap in the healthcare system's capacity to address the growing burden of CVDs.

Discussion

The findings of this study highlight the substantial access challenges faced by households in Bomet County, consistent with global patterns observed in other LMICs (Roth et al., 2020). The financial constraints faced by rural populations underscore the need for targeted health financing mechanisms, such as subsidized healthcare services or health insurance, to alleviate the economic burden of CVD care (Xu et al., 2018).

Financial Barriers and Economic Impact

The high proportion of households citing financial constraints as the main barrier to CVD care access (75.2%) underscores the critical role of economic factors in determining health outcomes. This finding aligns with the work of Mbugua et al. (2020), who identified a strong correlation between household wealth and access to CVD care in rural Kenya.

The substantial economic impact of CVDs on affected households, as evidenced by the high proportion of non-food expenditure devoted to healthcare (42%), is particularly concerning. This level of health expenditure meets the criteria for catastrophic health spending as defined by the World Health Organization (WHO, 2021), indicating a high risk of impoverishment due to health costs.

The qualitative data provide vivid illustrations of the economic hardships faced by CVD-affected households, including asset depletion, loss of income, and increased debt. These findings are consistent with the work of Otieno et al. (2022), who reported similar economic consequences among CVD-affected households in Kenya.

Healthcare Utilization and Quality of Care

The significantly higher healthcare utilization rates among CVD-affected households highlight the chronic nature of these conditions and the ongoing need for medical care. However, the reported difficulties in accessing care, including long wait times and distance to facilities, suggest that the healthcare system is struggling to meet this demand effectively.

The fact that only 43% of patients reported attending all their scheduled follow-up appointments is concerning, as regular monitoring and management are crucial for preventing CVD complications. This finding underscores the need for interventions that address both financial and logistical barriers to care access. The perspectives shared by healthcare providers in the focus group discussions reveal systemic challenges in providing quality CVD care, including medication stock-outs and lack of essential equipment. These findings align with recent research by Ochieng et al. (2022), who identified similar infrastructural and supply chain challenges in rural Kenyan healthcare facilities.

Quality of Life and Social Impact

The significant reductions in quality of life reported by CVD patients across all domains of the WHOQOL-BREF instrument underscore the pervasive impact of these conditions on individuals' well-being. These findings are consistent with the work of Wanjiru et al. (2021), who reported similar quality of life decrements among CVD patients in rural Kenya.

The qualitative data reveal the emotional and social toll of CVDs on patients and their families, including feelings of isolation, depression, and strain on relationships. These psychosocial impacts highlight the need for comprehensive care approaches that address not only the physical aspects of CVDs but also the mental health and social support needs of affected individuals and their caregivers.

Community Support and Coping Strategies

The importance of community support networks in helping households cope with the challenges of CVDs emerged as a significant theme in the qualitative data. This finding aligns with recent research by Kimani et al. (2023), who highlighted the role of social capital in mitigating the impact of chronic diseases in rural African settings.

However, the variability in the availability and effectiveness of these support systems suggests that formal social protection mechanisms are needed to complement community-based support. The fact that only 32% of households felt that community support was adequate to meet their needs indicates a significant gap in social safety nets for CVD-affected families.

Policy Implications

The findings of this study have several important policy implications:

1. **Universal Health Coverage**: The high financial barriers to CVD care underscore the urgent need to expand universal health coverage to include comprehensive CVD services, including screening, consultation, and treatment. This aligns with Kenya's commitment to achieving Universal Health Coverage by 2030 (Ministry of Health, 2022).

2. **Financial Protection**: Implementing targeted subsidies for CVD medications, diagnostic tests, and transportation could significantly reduce the economic burden on affected households. This could be achieved through a combination of government subsidies and innovative financing mechanisms such as community-based health insurance schemes (Mutua et al., 2021).

3. **Healthcare System Strengthening**: Addressing the systemic challenges identified by healthcare providers, such as medication stock-outs and lack of equipment, is crucial for improving the quality and consistency of CVD care. This may require increased investment in healthcare infrastructure and supply chain management in rural areas.

4. **Community-Based Care Models**: The development and implementation of community-based care models, potentially involving community health workers and telemedicine, could improve access to CVD care in rural areas. The success of mHealth interventions reported by Ochieng et al. (2022) suggests that technology-driven solutions could play a crucial role in enhancing healthcare access.

5. **Psychosocial Support**: Integrating mental health and social support services into CVD care programs could help address the broader impact of these conditions on patients and

their families. This could include support groups, counseling services, and community-based rehabilitation programs.

6. **Health Education and Prevention**: Enhancing community-based health education programs could improve awareness of CVD risk factors and promote preventive behaviors. This aligns with the WHO's (2021) recommendations for addressing non-communicable diseases in LMICs.

Limitations and Future Research

This study has several limitations that should be considered when interpreting the results. First, the cross-sectional design limits our ability to establish causal relationships between healthcare access, socioeconomic factors, and health outcomes. Longitudinal studies are needed to better understand the long-term impacts of CVDs on household economic trajectories.

Second, while the study focused on Bomet County, the generalizability of findings to other rural areas in Kenya or other LMICs may be limited due to contextual differences. Future research should consider multi-site studies to capture a broader range of rural healthcare access challenges.

Third, the reliance on self-reported data for some measures, particularly healthcare utilization and expenditure, may introduce recall bias. Future studies could benefit from integrating health facility data and household expenditure diaries for more accurate measurement.

Despite these limitations, this study provides valuable insights into the complex interplay between CVD care access, socioeconomic factors, and health outcomes in rural Kenya. Future research directions could include:

1. Evaluating the cost-effectiveness of community-based CVD care models in rural settings.
2. Exploring the potential of digital health interventions to improve CVD management and reduce healthcare access barriers.
3. Investigating the long-term economic trajectories of households affected by CVDs to inform social protection policies.
4. Examining the role of gender in CVD care access and management in rural African contexts.

4.0 CONCLUSION

This study underscores the urgent need for targeted interventions to improve access to healthcare services for CVDs in Bomet County. Strengthening healthcare infrastructure and addressing

financial barriers is essential to improving health outcomes. These findings align with global calls for universal health coverage and access to essential medicines, especially in rural settings (World Health Organization, 2021).

Addressing the financial and logistical barriers to CVD care is essential to mitigate the socioeconomic impact on affected households and promote better health outcomes. This will require a multifaceted approach, including expanding universal health coverage, strengthening healthcare systems, implementing community-based care models, and providing comprehensive psychosocial support.

The study highlights the interconnectedness of health and economic well-being, emphasizing the need for integrated approaches that address both medical and socioeconomic aspects of CVD management. By improving access to CVD care and mitigating its economic impact, it is possible to break the cycle of poverty and poor health outcomes that affect many rural households in Kenya.

As Kenya strives to achieve Universal Health Coverage and address the growing burden of non-communicable diseases, the insights from this study can inform policy decisions and guide the development of targeted interventions. Ultimately, improving access to CVD care in rural areas like Bomet County is not just a health imperative but a crucial step towards achieving broader development goals and enhancing the overall well-being of rural communities.

REFERENCES

Braun, V., & Clarke, V. (2021). *Thematic analysis: A practical guide. Sage.*

Cochran, W. G. (2020). *Sampling techniques. John Wiley & Sons.*

Creswell, J. W., & Creswell, J. D. (2021). *Research design: Qualitative, quantitative, and mixed methods approaches. Sage publications*.

Crswell, J. W., & Plano Clark, V. L. (2018). *Designing and conducting mixed methods research. Sage publications.*

Geldsetzer, P., Williams, T. C., Bärnighausen, T., & Davies, J. I. (2019). The state of hypertension care in 44 low-income and middle-income countries: A cross-sectional study of nationally representative individual-level data from 1.1 million adults. The Lancet, 394(10199), 652-662.

Gersh, B. J., Sliwa, K., Mayosi, B. M., & Yusuf, S. (2018). The epidemic of cardiovascular disease in the developing world: Global implications. European Heart Journal, 31(6), 642-648.

Karanja, S., Mbuagbaw, L., & Ritvo, P. (2021). Barriers to cardiovascular care in rural Kenya: A mixed-methods study. Global Health Research and Policy, 6(1), 1-12.

Kenya National Bureau of Statistics. (2022). 2022 Kenya Population and Housing Census: Volume I - Population by County and Sub-County. Nairobi: KNBS.

Kenya National Bureau of Statistics. (2023). Economic Survey 2023. Nairobi: KNBS.

Kibachio, J., Mwangi, C., & Wambui, D. (2021). Healthcare access for CVD in Kenya: Challenges and solutions. East African Medical Journal, 98(3), 45-54.

Kimani, K. N., Namukobe, J., & Mwangi, A. (2021). Cardiovascular disease burden and access to essential medicines in Kenya. PLoS ONE, 16(1), e0245641.

Kimani, S., Mwaura, J., & Osoro, E. (2023). Impact of community-based hypertension management on cardiovascular outcomes in rural Kenya: A cluster-randomized trial. The Lancet Global Health, 11(2), e180-e190.

Makau, J., Mutua, M. K., & Otieno, S. O. (2020). Rural health and CVD care in Kenya: Addressing disparities. Journal of Global Health, 15(2), 123-135.

Mbugua, S., Kimani, D., & Munyoki, G. (2020). Socioeconomic disparities in access to cardiovascular disease care in Kenya: A cross-sectional study. International Journal for Equity in Health, 19(1), 1-10.

Mills, A., Ataguba, J. E., Akazili, J., Borghi, J., & Garshong, B. (2012). Equity in financing and use of health care in Ghana, South Africa, and Tanzania: Implications for paths to universal coverage. The Lancet, 380(9837), 126-133.

Ministry of Health Kenya. (2021). Kenya STEPwise Survey for Non-Communicable Diseases Risk Factors 2021 Report. Nairobi: Ministry of Health.

Ministry of Health Kenya. (2022). Kenya Health Sector Strategic Plan 2022-2027. Nairobi: Ministry of Health.

Mutua, M. K., Kimani-Murage, E., & Ettarh, R. R. (2021). Effect of a community-based health insurance scheme on financial protection and healthcare utilization in rural Kenya: A quasi-experimental study. BMJ Global Health, 6(3), e004021.

Mwangi, J. W., Kimani, S. T., & Odongo, F. O. (2022). Cardiovascular disease risk factors and access to health services in rural Kenya

National AIDS and STIs Control Programme. (2019). Kenya HIV Estimates Report. Nairobi: NASCOP.

Otieno, S., Kipruto, W., & Kariuki, D. (2022). Financial implications of cardiovascular disease care in rural Kenya. African Health Sciences, 22(1), 65-73.

Roth, G. A., Johnson, C., Abajobir, A., et al. (2020). Global, regional, and national burden of cardiovascular diseases for 10 causes, 1990 to 2016. *Journal of the American College of Cardiology*, 70(1), 1-25.

The Lancet NCD Group. (2021). Non-communicable diseases in low-income countries: A hidden epidemic. *The Lancet*, 398(10294), 77-90.

The World Bank. (2020). *World Development Report 2020: Trading for development in the age of global value chains*. Washington, DC: World Bank.

World Health Organization. (2021). *Global status report on non-communicable diseases*. WHO.

Xu, K., Evans, D. B., Carrin, G., Aguilar-Rivera, A. M., Musgrove, P., & Evans, T. (2018). Protecting households from catastrophic health spending. *Health Affairs*, 26(4), 972-983.