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Patterns and Determinants of Maternal Health Service Utilisation in Rural and Urban Samburu, Kenya

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Abstract

Background

Maternal health services (MHS)—antenatal care (ANC), skilled birth attendance (SBA), and postnatal care (PNC)—are essential for reducing maternal and neonatal mortality, yet utilisation remains uneven in pastoralist and low-resource settings.

Aim

To examine patterns and determinants of maternal health service utilisation among women in rural and urban Samburu East Sub-County, Kenya.

Methods

A cross-sectional mixed-methods study was conducted among 432 women (216 rural; 216 urban). Quantitative data were analysed using descriptive statistics and regression models, while qualitative data from community health promoters and key informants were analysed thematically.

Results

Urban women had higher utilisation of ANC (84.3% vs. 54.6%), SBA (58.8% vs. 26.4%), and PNC (55.1% vs. 30.1%). Completion of four or more ANC visits was low, particularly in rural areas (8.6%). Key determinants included maternal and partner education, cultural beliefs, distance to health facilities, income, decision-making autonomy, and health system factors such as staffing and availability of supplies.

Conclusion

Maternal health service utilisation is shaped by interrelated socio-cultural, economic, and health system factors. Culturally appropriate, equity-focused interventions are required to improve uptake in rural communities.

CHAPTER ONE: INTRODUCTION

Maternal mortality remains a major public health challenge globally, particularly in low-resource settings (World Health Organization [WHO], 2016; Kruk et al., 2018). In Kenya, disparities persist between rural and urban populations in access to and utilisation of maternal health services (Kenya National Bureau of Statistics [KNBS], 2023; Ministry of Health Kenya [MOH], 2020).

Samburu East Sub-County is a predominantly pastoralist and hard-to-reach region characterised by limited infrastructure, long distances to health facilities, and strong cultural practices that influence care-seeking behaviour. Understanding the factors influencing utilisation is critical for improving maternal and neonatal outcomes.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter reviews existing literature on maternal health service utilisation, focusing on antenatal care (ANC), intrapartum care, and postnatal care (PNC). The review is guided by the study objectives and highlights key determinants and gaps, particularly in rural and urban contexts in sub-Saharan Africa and Kenya.

The quality of maternal health services and respectful maternity care are important determinants of service utilisation (Bohren et al., 2015; Kruk et al., 2018).

2.2 Uptake and Utilisation of Maternal Health Services

Evidence from sub-Saharan Africa indicates that although many countries report high national coverage of maternal health services, significant inequalities persist within countries, particularly across socioeconomic and geographic groups (Okoli et al., 2020; Wigley et al., 2020). Utilisation is consistently lower among women with low education, low income, and those residing in rural areas.

The “Three Delays Model” and care-seeking behaviour frameworks further explain barriers to maternal health service utilisation (Gabrysch & Campbell, 2009; Moyer & Mustafa, 2013; Pell et al., 2013). Additionally, disruptions associated with the COVID-19 pandemic reduced service uptake because of fear of infection and movement restrictions (Pant et al., 2020).

2.2.1 Antenatal Care Utilisation

Antenatal care coverage is generally high in low- and middle-income countries (LMICs), with most women attending at least one visit; however, completion of recommended visits remains suboptimal (Tikmani et al., 2020). In Kenya, 98% of women receive ANC from skilled providers, yet only 66% complete at least four ANC visits (KNBS, 2023).

The WHO recommends a minimum of eight ANC contacts for positive pregnancy outcomes (WHO, 2016). However, disparities exist according to education level and geographic region, with lower completion rates among less-educated women and those residing in marginalized counties (Asiimwe et al., 2024; Ikamari, 2020).

2.2.2 Intrapartum Care Utilisation

Skilled birth attendance varies widely across sub-Saharan Africa. In Kenya, skilled delivery is strongly associated with maternal education, household wealth, and urban residence (KNBS, 2023). Although national coverage is relatively high, marginalized counties such as Samburu, Turkana, and Mandera continue to report substantially lower utilisation rates.

Poor quality of care, including disrespect and abuse during childbirth, discourages women from seeking facility-based delivery services (Bohren et al., 2015; Kruk et al., 2018).

2.2.3 Postnatal Care Utilisation

Postnatal care remains the least utilised component of the maternal continuum of care. The WHO emphasizes early postnatal contact within 48 hours after childbirth to reduce maternal and neonatal mortality (WHO, 2022). Regional estimates in sub-Saharan Africa indicate persistently low postnatal care utilisation, although Kenya reports relatively higher early PNC coverage, with approximately 73% of women receiving care within two days after delivery (KNBS, 2023; Tessema et al., 2021).

2.3 Client-Related Factors Influencing Maternal Health Service Utilisation

Client-related factors include socio-demographic characteristics, socioeconomic status, and cultural influences that shape health-seeking behaviour.

Education is consistently identified as a strong predictor of maternal health service utilisation (Amwonya et al., 2022; Bintabara & Mwampagatwa, 2023). Similarly, women from wealthier households are more likely to utilise maternal health services than women from poorer households (Okoli et al., 2020; WHO, 2022).

Place of residence also plays a critical role, with rural women facing greater barriers to accessing maternal healthcare services compared to urban women (Sanogo & Yaya, 2020). These barriers are often linked to delayed decision-making, long distances to health facilities, limited transportation, and poor access to healthcare services (Gabrysch & Campbell, 2009; Moyer & Mustafa, 2013).

Women's autonomy and respectful treatment during care significantly influence healthcare utilisation and continuity of care (Bohren et al., 2015; Kruk et al., 2018).

2.4 Health Facility-Related Factors

Health system factors significantly influence maternal health service utilisation, including the availability of skilled personnel, infrastructure, essential supplies, and quality of care.

Kenya's free maternity programme, Linda Mama, was introduced to improve access to maternal healthcare services in line with national reproductive, maternal, newborn, child, and adolescent health (RMNCAH) priorities (MOH, 2020). However, implementation challenges continue to affect programme effectiveness (Oyugi et al., 2024).

Quality of care remains central to maternal health service utilisation, with poor experiences such as disrespectful and abusive care discouraging women from seeking facility-based maternal healthcare services (Bohren et al., 2015; Kruk et al., 2018).

2.5 Cultural Beliefs, Practices, and Perceived Barriers

Cultural beliefs and social norms continue to influence maternal health behaviours and frequently delay timely care-seeking practices (Gabrysch & Campbell, 2009; Moyer & Mustafa, 2013).

In pastoralist communities such as Samburu, strong cultural practices, low literacy levels, gender dynamics, and limited decision-making autonomy contribute to low utilisation of maternal health services (KNBS, 2023).

2.6 Healthcare Provider Perspectives

Healthcare providers influence both the quality and acceptability of maternal health services. However, poor working conditions, inadequate staffing, and limited resources negatively affect service delivery and patient satisfaction (Kruk et al., 2018).

Respectful maternity care is essential for improving trust in healthcare systems and increasing maternal health service utilisation among women (Bohren et al., 2015). Community-based interventions and integrated health system strengthening approaches are recommended to improve maternal and neonatal health outcomes (MOH, 2020).

2.7 Conceptual Framework

This study is guided by a conceptual framework that examines socio-demographic, client-related, and health system factors influencing maternal health service utilisation.

The framework is supported by established models on determinants of maternal health service utilisation (Gabrysch & Campbell, 2009; Moyer & Mustafa, 2013) and health system quality frameworks (Kruk et al., 2018).

CHAPTER THREE: METHODS

Study Design and Setting

This study employed a **mixed-methods design**, integrating a quantitative cross-sectional survey with qualitative approaches to examine maternal health service (MHS) utilisation. The study was conducted in Samburu East Sub-County, a predominantly pastoralist region in northern Kenya characterized by dispersed settlements, limited infrastructure, and constrained access to healthcare services. The sub-county has approximately 87,000 residents and 24 health facilities, including hospitals, health centres, and dispensaries, serving both rural and peri-urban populations.

Study Population and Eligibility

The study included **women of childbearing age (15–49 years)** who had utilized antenatal, delivery, or postnatal services within selected rural and urban health facilities. Participants were required to have resided in the area for at least six months and to provide informed consent.

For the qualitative component, **healthcare providers** involved in maternal health service delivery and **Community Health Promoters (CHPs)** were included. Providers participated in key informant interviews, while CHPs took part in focus group discussions to explore community-level perspectives.

Sample Size and Sampling

Sample size was determined using proportions of women attending at least four antenatal care visits in urban (74.1%) and rural (61.5%) settings, with 80% power and a 5% significance level. A minimum of **216 women per group** was calculated, with an additional 10% to account for non-response.

A **multistage sampling approach** was applied. The study area was stratified into urban and rural settings. Selected facilities included Archers Post and Sereolipi (urban) and Swari and Lodungokwe (rural). Within these areas, **simple random sampling** was used to recruit eligible women.

For qualitative data, **purposive sampling** was used to select healthcare providers for key informant interviews and CHPs for focus group discussions.

Data Collection

Quantitative data were collected using an **interviewer-administered structured questionnaire** developed from existing literature and aligned with study objectives. The tool captured socio-demographic characteristics, maternal health service utilisation (ANC, skilled delivery, PNC), and health system factors.

Qualitative data were collected using **semi-structured interview guides** for key informant interviews and focus group discussions. These explored experiences, cultural beliefs, and perceived barriers influencing MHS utilisation.

Data collection was conducted by trained research assistants under supervision of the principal investigator. Standardized procedures were followed to ensure consistency and minimize bias.

Validity and Reliability

The questionnaire was pretested in a similar setting outside the study area, and necessary revisions were made to improve clarity and relevance. Internal consistency was assessed using Cronbach's alpha, yielding acceptable reliability coefficients (ANC: 0.75; skilled delivery: 0.78; PNC: 0.73).

Trustworthiness of qualitative data was ensured through **triangulation** and **member checking**.

Table 1: Validity, Reliability and credibility of research tools

Method	Construct / Focus Area	Number of Items / Questions	Reliability / Trustworthiness
Quantitative Data			
Questionnaires	Antenatal Care (ANC) Utilisation	36	Cronbach's alpha = 0.75
	Skilled Birth Attendant (Intrapartum Care)	36	Cronbach's alpha = 0.78
	Postnatal Care (PNC) Utilisation	36	Cronbach's alpha = 0.73
Qualitative Data			
Focus Group Discussion	Community health Promoters(CHPs) perceptions, cultural beliefs, barriers to MHS utilisation	N/A (guided questions)	Trustworthiness ensured through triangulation and member checking
Key Informant Interview	Health system factors, provider perspectives, service delivery challenges	N/A (semi-structured guide)	Trustworthiness ensured through triangulation and validation with field notes

Data Analysis

Quantitative data were analyzed using descriptive and inferential statistics. Crosstabulations and regression analyses were performed to assess associations between independent variables (socio-demographic, client-related, and health system factors) and MHS utilisation outcomes. Statistical significance was set at **$p < 0.05$**.

Qualitative data were analyzed using **thematic analysis**, allowing identification of key patterns related to cultural beliefs, barriers, and provider perspectives.

CHAPTER FOUR: FINDINGS

Quantitative data analysis

Participant characteristics

Respondents in rural areas were predominantly aged 20–29 years, engaged mainly in pastoralism, and characterized by low education levels and household incomes below Ksh 5,000. Households were largely male-headed, with larger family sizes and limited access to healthcare, often requiring travel times exceeding 60 minutes, primarily on foot. In contrast, urban respondents were mostly aged 25–34 years and engaged in diverse income-generating activities such as small-scale trade and domestic work. They had relatively higher education and income levels, smaller family sizes, and a higher proportion of

female-headed households. Access to healthcare was comparatively better, with most residing within 30 minutes of a health facility.

Utilisation of maternal health services

Antenatal care

Antenatal care (ANC) utilisation differed markedly between rural and urban settings. In rural areas, just over half of the women (54.64%) attended ANC at least once, but only 8.55% completed the recommended four visits, with many initiating care late (≥5 months). ANC attendance was largely driven by illness rather than routine care, reflecting a reactive health-seeking pattern. Among non-attendees, the main reason was perceived good health. PMTCT uptake was high (88.24%), although non-utilisation was linked to perceived low HIV risk and stigma.

In contrast, urban areas showed higher ANC utilisation, with 84.26% attending at least once and 29.32% completing four visits. Initiation was relatively earlier, and most women attended as part of routine care, indicating a more preventive approach. However, delays in initiation persisted for some. Lack of spousal approval was the main reason for non-attendance. PMTCT uptake was also high (83.33%), with similar barriers of perceived low HIV risk and stigma among non-users.

Table 2: Multivariate Linear Regression Analysis of Socio-Demographic and Access-Related Predictors of ANC Utilisation

Predictor Variable	Coefficient (β)	p-value
Mother's education level	0.101	**0.006**
Husband's education level	0.103	**<0.001**
Residence	0.012	0.12
Age category	0.001	0.45
Occupation	0	0.81
Religion	-0.009	0.35
Monthly income	0.003	0.28
Family size	-0.007	0.22
Distance to health facility	-0.022	0.18
Mode of transport	-0.036	0.14
Household head	0.055	0.08
Other factors (parity, decision maker, age at last birth, sensitization, access to media, pregnancy planned, insecurity episodes, ethnicity, marital status)	Mixed (±)	>0.05
Model Summary **R = 0.254, R^2 = 0.064, Adjusted R^2 = 0.049** **F-statistic = 4.13, p<0.001 → Model is statistically significant**		

Skilled birth attendance

Skilled birth attendance (SBA) was substantially lower in rural compared to urban settings. In rural areas, only 26.39% of women delivered with a skilled provider, and most births (68.52%) occurred at home. Preference for traditional birth attendants (60.19%) was high, influenced in part by cultural and religious beliefs. Birth preparedness was extremely low (4.63%), largely due to cultural norms, and early initiation of breastfeeding was uncommon (19.91%), often delayed by traditional practices such as administering ghee. PMTCT service uptake during delivery was relatively high (73.33%), although fear, stigma, and perceived low HIV risk limited utilisation among some women.

In contrast, urban areas demonstrated higher SBA utilisation, with 58.80% of women delivering with skilled providers and 50% delivering in health facilities. Preference for skilled providers was higher, although traditional birth attendants remained relevant. Birth preparedness was more common (23.61%) but still suboptimal, with cultural and financial barriers persisting. Early initiation of breastfeeding was higher (60%), though delays were attributed to perceived inadequate milk supply and cultural practices.

PMTCT uptake was similarly high (73.86%), with fear and stigma remaining key barriers among non-users.

Table 3: Multivariate Linear Regression Analysis of Socio-Demographic and Access-Related Predictors of SBA Utilisation

Predictor Variable	Coefficient (β)	p-value
Mother's education level	0.101	**0.006**
Husband's education level	0.103	**<0.001**
Residence	0.012	0.12
Age category	0.001	0.45
Occupation	0	0.81
Religion	-0.009	0.35
Monthly income	0.003	0.28
Family size	-0.007	0.22
Distance to health facility	-0.022	0.18
Mode of transport	-0.036	0.14
Household head	0.055	0.08
Other factors (parity, decision maker, age at last birth, sensitization, access to media, pregnancy planned, insecurity episodes, ethnicity, marital status)	Mixed (±)	>0.05
Model Summary		
R =0.254, R^2 = 0.064, Adjusted R^2 = 0.049		
F-statistic = 4.13, p<0.001 → Model is statistically significant		

Postnatal care

Postnatal care (PNC) utilisation was lower in rural than urban settings, particularly in the early postnatal period. In rural areas, only 30.09% of women accessed PNC within two weeks after delivery, although attendance increased to 60% for later visits. Care-seeking was largely problem-driven, with most women attending due to illness rather than routine follow-up. Key barriers included lack of awareness, perceived good health, long distances to facilities, and limited spousal support. PMTCT uptake during the postnatal period was very low (10.70%), primarily due to perceived low HIV risk and stigma. Family planning use was also limited (16.28%), with husband disapproval and fear of side effects being the main constraints.

In contrast, urban areas showed higher early PNC utilisation (55.09%) and moderate attendance at later visits (56.06%). Service uptake was often linked to child immunization visits, indicating better integration of services. However, lack of awareness remained a key barrier among non-attendees. PMTCT uptake was higher than in rural areas (24.54%) but still suboptimal, with stigma and perceived low risk as major barriers. Contraceptive use was also higher (40.28%), although fear of side effects and partner-related factors continued to limit uptake.

Table 4: Multivariate Linear Regression Analysis of Socio-Demographic and Access-Related Predictors of PNC Utilisation

Predictor Variable	Coefficient (β)	p-value
Mother's education level	0.267	**<0.001**
Husband's education level	0.08	**0.003**
Residence	-0.141	0.061
Age category	0.01	0.457
Occupation	0.01	0.309
Religion	-0.013	0.526
Monthly income	-0.009	0.849
Family size	-0.005	0.653
Distance to health facility	-0.049	0.178
Mode of transport	0.053	0.262
Household head	-0.039	0.438
Other factors (parity, ethnicity, decision maker, age at last birth, sensitization on maternal health services, access to media, insecurity episodes, pregnancy planned, marital status)	Mixed (±)	>0.05
Model Summary **R =0.321, R^2 =0.103, Adjusted R^2 =0.088** **F-statistic =6.42 , p<0.001→ Model is statistically significant**		

Determinants of utilisation

Client-Related Factors Associated with Utilisation of Maternal Health Care

Client-related factors significantly influenced maternal health service (MHS) utilisation in both rural and urban settings. In rural areas, women were generally younger, with evidence of early childbearing, low educational attainment, and high levels of poverty. Households were predominantly male-headed, with husbands serving as the main decision-makers, reflecting limited female autonomy. Livelihoods were largely pastoral, and high parity and large household sizes were common. Geographic barriers were substantial, with most women living more than 60 minutes from health facilities and relying on walking for transport. Access to maternal health information and pregnancy planning was limited, further constraining service utilisation.

In contrast, urban women tended to have higher education levels, more diverse income-generating activities, and relatively better socioeconomic conditions, although many still reported low incomes. Female autonomy was greater, with a higher proportion of women participating in healthcare decision-making and more female-headed households. Parity levels were lower, and pregnancy planning was more common. Access to health facilities and information was also improved, with greater exposure to health education and media. Overall, these differences highlight the influence of socioeconomic status, autonomy, access to information, and geographic proximity on MHS utilisation across rural and urban contexts.

Table 5: Other Social determinants of utilisation of MHS

Other Social determinants	Details	Rural		urban	
Decision maker on maternal health service utilisation in the family		**Freq.**	**Percent**	**Freq.**	**Percent**
	Husband	177	81.94	141	65.28
	Others	22	10.19	4	1.85
	Wife	17	7.87	71	32.87
	Total	216	100	216	100
Age at birth of the last child	15-19 years	59	27.31	23	10.65
	20-24 years	53	24.54	36	16.67
	25-29 years	43	19.91	71	32.87
	30-34 years	28	12.96	41	18.98
	35-39 years	17	7.87	12	5.56
	40-44 years	9	4.17	19	8.8
	44-49 years	7	3.24	14	6.48
	Total	216	100	216	100
Has been sensitized on available maternal health services (ANC, delivery and PNC) during clinic visits.	NO	96	44.44	55	25.46
	YES	120	55.56	161	74.54
	Total	216	100	216	100
Has access to health information from mainstream media (e.g. radio, TV, etc.)	NO	109	50.46	40	18.52
	YES	107	49.54	176	81.48
	Total	216	100	216	100
Frequency of insecurity episodes (cattle rustling, terror attacks, etc.) in the place of residence.	None	44	20.37	197	91.2
	Once a month	17	7.87	0	0
	Once a year	155	71.76	19	8.8
	Total	216	100	216	100
Was the current/last pregnancy planned for?	NO	186	86.11	139	64.35

YES	30	13.89	77	35.65
Total	216	100	216	100

4.4 Health-Facility-Related Factors Associated with Utilisation of MHS

Health facility–related factors significantly influenced maternal health service (MHS) utilisation in both rural and urban settings. In rural areas, key facilitators included proximity to health facilities, availability of essential medicines, affordability of services, and outreach programs. Gender of healthcare providers, staff attitude, and 24-hour service availability also influenced care-seeking. Infrastructure factors such as water, sanitation, and hygiene conditions, as well as functional referral systems, were important in shaping utilisation. However, barriers included limited male involvement, cultural taboos, shortages of medicines, and inadequate provider diversity, highlighting both system and socio-cultural constraints.

In urban areas, provider-related factors—particularly staff attitude—were the most influential determinants of service utilisation, alongside availability of essential services, proximity, and affordability through initiatives such as Linda Mama and insurance coverage. Infrastructure quality, availability of medicines and equipment, and effective referral systems also supported utilisation. Respectful maternity care, including privacy, informed consent, and responsiveness to women's preferences, played a key role in encouraging service use. Despite these advantages, challenges such as occasional stock-outs, negative provider attitudes, and concerns about quality of care persisted, though less prominently than in rural settings.

Table 6: Regression analysis ANC

Health Facility Factor	Coefficient (β)	p-value
Human resource factors	0.278	**<0.001**
Availability of MHS services	-0.342	**<0.001**
Affordability of MHS	-0.094	0.157
Referral services	0.020	0.906
Water, hygiene and sanitation	-0.051	0.237
Supplies and equipment	0.165	0.077
Quality of MHS services	-0.041	0.342
Model Summary		
R = 0.254, R^2 = 0.064, Adjusted R^2 = 0.049		
F-statistic = 4.13, p<0.001 → Model is statistically significant		

The model shows a weak positive relationship (R = 0.254) between client-related factors and ANC utilisation. The R^2 value of 0.064 indicates that 6.4% of the variation in ANC utilisation is explained by the variables included in the model, while the adjusted R^2 of 0.049 shows that 4.9% of the variation is explained after adjusting for the predictors. The F-statistic (4.13) with p = 0.0002 indicates that the overall regression model is statistically significant, meaning that client-related factors collectively influence ANC utilisation.

Table 7: Regression analysis SBA

Predictor Variable	Coefficient ((β)	p-value
Human Resource Factors	0.0817	**<0.001**
Availability of MHS Services	-0.0137	0.166
Affordability of MHS Services	0.0424	0.085
Referral Services	-0.0137	0.341
Water, Hygiene and Sanitation	-0.0355	0.075
Supplies and Equipment	0.0984	**0.05**
Quality of MHS Services	0.0023	0.852
Model Summary		
R=0.2472, R^2=0.0611, Adjusted R^2=0.0455		
F-statistic=3.91,p<0.001 →Model is statistically significant		

Multiple regression analysis showed that health facility–related factors had a statistically significant but weak influence on skilled birth attendance (SBA) utilisation (F=3.91, p=0.0004; r=0.247). The model explained a small proportion of variation in SBA use (R^2=6.11%). Among the predictors, **human resource factors** and **availability of supplies and equipment** were significantly associated with increased SBA utilisation, indicating that improved staffing and adequate medical resources enhance service uptake. Other factors, including service availability, affordability, referral systems, water and sanitation, and perceived quality of care, were not statistically significant. These findings suggest that strengthening workforce capacity and ensuring adequate supplies are key drivers of SBA utilisation.

Table 8: Regression analysis PNC

Hospital-Related Factor	Coefficient ((β)	p-value
Human resource factors	0.0609	**0.007**
Availability of MHS services	-0.0176	0.079
Affordability of MHS services	-0.0049	0.843
Referral services	-0.0072	0.617
Water, hygiene and sanitation	-0.0528	**0.009**
Supplies and equipment	0.0805	0.111
Quality of MHS services	-0.0006	0.964
Model Summary		
R=0.2156, R^2=0.0465, Adjusted R^2=0.0307		
F-statistic=2.93, p<0.001 →Model is statistically significant		

Multiple regression analysis showed that hospital-related factors had a statistically significant but weak influence on early postnatal care (PNC) utilisation (F=2.93, p=0.0052). The model demonstrated a weak positive relationship between the predictors and early PNC use (R=0.216), explaining 4.65% of the variation in utilisation (R^2=0.0465; Adjusted R^2=0.0307). These findings indicate that while hospital-related factors contribute to early PNC uptake, they account for a relatively small proportion of the observed variation.

4.5 Cultural Factors, Practices, and Barriers Influencing MHS Utilisation

4.5.1 Rural-Specific Barriers

Theme 1: Lack of Knowledge and Awareness

In rural settings, limited knowledge and persistent misconceptions significantly reduced utilisation of maternal health services (MHS). Myths such as fear of witchcraft, belief that pregnancy requires no medical attention unless complications arise, and low awareness of free services were common. Health education and community sensitization were identified as key interventions improving awareness and uptake.

“Some women believe pregnancy and childbirth are natural processes and don’t need medical attention unless there’s a problem.” (CHP7)

Theme 2: Stigma

Stigma related to HIV status, adolescent pregnancy, and community judgment discouraged women from seeking care, leading to delayed or avoided ANC attendance.

Theme 3: Insecurity

Insecurity, particularly cattle rustling and fear of night travel, limited access to facility-based delivery services.

“Because of the cattle raids, the women fear travelling to the health centre... they do not know if they will return home safely.” (CHP8)

4.5.2 Urban-Specific Barriers

Theme 1: Health System Constraints

Urban facilities were affected by overcrowding, long waiting times, and inadequate staffing, leading to dissatisfaction and reduced utilisation of services.

“Sometimes there is only one health worker attending to many mothers, so women wait for hours before being seen.” (CHP4)

Theme 2: Negative Staff Attitudes and Poor Quality of Care

Negative experiences such as disrespect, blame, and embarrassment discouraged repeat visits and reduced trust in facility care.

Theme 3: Facility Overcrowding

High patient load and limited staff contributed to delays and poor service experience, further discouraging attendance.

4.5.3 Cross-Cutting Factors (Urban and Rural)

Theme 1: Socio-Cultural Beliefs and Practices

Male Dominance

Male partners strongly influenced decision-making regarding ANC and delivery, often requiring permission or support to seek care.

“If the husband doesn’t prioritize it, the woman may not go.” (CHP5-Rural)

Gender Preference

Many women preferred female health providers due to discomfort with male attendants during reproductive care.

“Most women feel shy being examined by male providers during ANC, delivery or PNC.” (CHP5-Rural)

Cultural Practices and Taboos

Traditional beliefs such as honoring ancestors, placenta disposal rituals, pregnancy concealment, and post-delivery seclusion contributed to home deliveries and delayed postnatal care.

“Many women prefer to deliver at home because the placenta must be disposed of within the home environment to appease the ancestors.” (CHP7-Rural)

Theme 2: Transport and Infrastructure Barriers

Long distances, poor roads, insecurity, and high transport costs limited access to maternal health services in both rural and urban areas.

Theme 3: Poverty

Indirect costs such as transport, delivery supplies, and medical necessities remained major barriers despite free maternal health services.

Theme 4: Language Barriers

Communication challenges reduced service utilisation, while use of local language improved understanding and service uptake.

“When nurses explain things in the local language, mothers are more likely to return and refer others.” (CHP5)

4.6 Healthcare Providers’ Perspectives on Opportunities and Barriers to MHS Utilisation

4.6.1 Opportunities to Enhance MHS Utilisation

Healthcare providers identified several strategies to improve maternal health service (MHS) utilisation. These included community outreach and mobile services, strengthened community follow-up through CHPs, support groups, male partner involvement, socio-economic empowerment, and improved health system responsiveness. These strategies were viewed as key in improving awareness, access, and continuity of care.

Community outreach was particularly emphasized as improving early attendance:

“After introducing regular mobile outreach with community health volunteers, we saw an increase in early ANC attendance.” (RSFI)

Male involvement and community education were also highlighted as important for improving service uptake.

4.6.2 Barriers Influencing MHS Utilisation

Barriers to MHS utilisation were multidimensional, spanning socio-cultural, physical, health system, economic, and communication domains.

Socio-Cultural and Knowledge Barriers

Limited awareness, misconceptions, stigma, and gender norms negatively influenced care-seeking. Some women delayed ANC due to cultural beliefs and fear of disclosure:

“Many women still believe that pregnancy should be hidden in the early months because they fear witchcraft or bad luck.” (RLFI)

Stigma and fear of judgment also discouraged utilisation, especially among young and unmarried women.

Gender preferences affected service use, with discomfort reported when male providers were involved.

Physical and Environmental Barriers

Long distances, poor transport, and insecurity were major barriers, particularly in rural areas:

“Some women walk for several hours to reach the facility.” (RLFI)

Insecurity related to cattle rustling further limited timely access to services.

Health System Barriers

Staff shortages, overcrowding, long waiting times, and inadequate supplies reduced service quality and discouraged utilisation.

“Sometimes we have only one or two health workers covering many services.” (RSFI)

Economic Barriers

Although services are free, indirect costs such as transport and delivery supplies remained a major challenge.

Communication Barriers

Language differences and poor provider communication affected understanding and trust in services. Use of local language was associated with improved uptake.

4.7 Triangulation Summary of Study Findings

Data triangulation of quantitative and qualitative findings provided a comprehensive understanding of factors influencing maternal health service (MHS) utilisation in Samburu East Sub-County.

Both data sets consistently showed that **low awareness and knowledge gaps** were major barriers to ANC, SBA, and PNC utilisation. Quantitative findings indicated delayed ANC initiation and low completion of recommended visits, while qualitative data confirmed that myths, misconceptions, and stigma (including fear of witchcraft, HIV-related stigma, and adolescent pregnancy stigma) discouraged timely care-seeking.

Geographic and physical access barriers were also consistent across both strands. Quantitative results showed long distances and reliance on walking, while qualitative findings highlighted insecurity, poor roads, and transport challenges that further limited access, especially during labor.

Health system factors were strongly supported in both datasets. Quantitative data showed the influence of staff competence, availability of medicines, and infrastructure, while qualitative findings emphasized overcrowding, long waiting times, understaffing, and inadequate supplies as key deterrents to service use.

Both findings also confirmed that **economic constraints**, particularly indirect costs such as transport and delivery supplies, reduced utilisation despite free maternity services.

Communication barriers were similarly evident. Lower education levels and limited information access (quantitative) aligned with qualitative reports of language barriers and poor provider communication, which negatively affected care-seeking. However, use of local language and respectful communication improved uptake.

Finally, both data sources identified enabling factors such as **community outreach, CHPs follow-up, male partner involvement, support groups, and respectful maternity care**, which improved awareness, trust, and continuity of care.

Overall, triangulation shows that MHS utilisation is shaped by interacting **socio-cultural, economic, geographic, health system, and communication factors**, with both datasets reinforcing similar patterns.

CHAPTER FIVE: DISCUSSION

5.0 Introduction

This chapter discusses findings on maternal health service (MHS) utilisation—antenatal care (ANC), skilled birth attendance (SBA), and postnatal care (PNC)—in Samburu East Sub-County by integrating quantitative and qualitative results with existing literature and study objectives.

5.1 Uptake and Utilisation of MHS

The study revealed clear rural–urban disparities in MHS utilisation, with urban women consistently utilizing ANC, SBA, and PNC services more than rural women. Rural women often initiated ANC late or only when complications arose, while urban women were more likely to use services for preventive care. Skilled birth attendance was also lower in rural areas due to distance, insecurity, and reliance on traditional birth attendants, whereas urban women predominantly used facility-based delivery services. Similarly, PNC utilisation remained generally low but was relatively higher in urban areas, partly due to integration with child immunization services. Overall, utilisation patterns were strongly influenced by geographic access, awareness levels, cultural beliefs, and household decision-making dynamics, particularly male partner involvement.

5.2 Client-Related Factors

Client-related factors such as education, income, occupation, parity, and autonomy significantly influenced MHS utilisation. Rural women had lower levels of education, higher parity, and greater dependence on male decision-making, which limited their utilisation of services. In contrast, urban women benefited from higher education levels, better income opportunities, and improved health awareness, which enhanced service uptake. Low income, early marriage, and limited exposure to health information were major barriers, while women with higher education and economic independence were more likely to utilize MHS consistently across the continuum of care.

5.3 Health System Factors

Health system factors played a central role in shaping utilisation patterns in both settings. In rural areas, shortages of skilled health workers, inadequate supplies, poor infrastructure, weak referral systems, and long distances to facilities significantly hindered access to care. In urban areas, although physical access was less of a challenge, overcrowding, long waiting times, staff shortages, and negative provider attitudes reduced service satisfaction and discouraged utilisation. Human resource factors emerged as the most consistent and strongest predictors of MHS utilisation across ANC, SBA, and PNC, underscoring the importance of staffing levels and provider–client interactions.

5.4 Cultural and Contextual Barriers

Cultural and contextual factors further shaped MHS utilisation. These included low awareness and misconceptions such as fear of witchcraft, stigma associated with HIV and teenage pregnancy, male dominance in decision-making, and preference for female health providers. Traditional beliefs such as home delivery to honor ancestors and postnatal seclusion also influenced care-seeking behavior. In addition, insecurity, poor transport infrastructure, poverty, and indirect costs such as transport and delivery supplies further limited access, particularly in rural areas. Language barriers and poor communication with providers also discouraged some women from utilizing services, while culturally sensitive communication improved uptake.

5.5 Healthcare Providers’ Perspectives

Healthcare providers identified several opportunities to improve MHS utilisation, including community outreach, mobile health services, CHPs-led follow-up, support groups, male partner engagement, and improved health system responsiveness. These strategies were seen to enhance awareness, trust, and continuity of care. However, providers also highlighted persistent barriers such as staff shortages, overcrowding, inadequate supplies, poor infrastructure, negative client experiences, cultural norms, financial constraints, and communication challenges. These issues were reported to reduce service quality and limit utilisation, particularly in rural and underserved areas.

MHS utilisation in Samburu East Sub-County is shaped by an interplay of individual, cultural, economic, and health system factors. Rural women experience greater structural and sociocultural barriers, while urban women are more affected by service delivery inefficiencies. Addressing these disparities requires integrated, context-specific interventions focusing on strengthening human resources, improving service quality, enhancing community engagement, promoting male involvement, and reducing financial and cultural barriers to care.

CHAPTER SIX: CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

This study demonstrates clear rural–urban disparities in maternal health service (MHS) utilisation in Samburu East Sub-County, with rural women consistently experiencing lower uptake of ANC, SBA, and PNC services. These disparities are driven by interconnected socio-demographic, cultural, and health system factors. Rural women face greater barriers including limited access to health facilities, lower education levels, higher parity, and strong cultural beliefs that favor traditional birth practices and home deliveries. Urban women, in contrast, benefit from better access to services, higher education, improved health awareness, and more supportive sociocultural conditions, resulting in higher utilisation rates.

Both client-related and health system factors significantly influence MHS uptake. While education and awareness promote timely and appropriate use of services, low education, cultural norms, and limited decision-making autonomy—particularly in rural settings—reduce utilisation and reinforce reliance on traditional practices. Health system challenges such as staff shortages, provider attitudes, gender preferences, overcrowding in urban facilities, and inadequate infrastructure further affect service use. Overall, MHS utilisation is shaped by a combination of individual, cultural, and structural factors that interact to influence health-seeking behavior.

Persistent barriers including poverty, transport difficulties, low male involvement, cultural norms, and negative provider experiences continue to limit optimal utilisation across both settings. However, enabling factors such as community health promoters (CHPs), outreach services, free maternity care programs, respectful maternity care, and male partner engagement play a key role in improving access. These findings highlight the need for integrated, context-specific interventions that address both health system weaknesses and sociocultural barriers.

6.2 Recommendations

6.2.1 Policy Makers (County and National Government)

Policy interventions should focus on strengthening rural health infrastructure through the expansion and upgrading of health facilities, ensuring availability of essential supplies, adequate staffing, and privacy during care. Recruitment of more female healthcare providers in rural areas is recommended to address

cultural preferences and improve service uptake. Mobile outreach services and integrated community-based health programs should be expanded to improve access in remote areas.

Efforts to enhance community awareness, particularly targeting men and adolescents, should be prioritized to promote early health-seeking behavior and male involvement in maternal health. In urban settings, strategies to reduce overcrowding through improved staffing and resource allocation are essential. Strengthening health financing schemes such as NHIF/SHA is also necessary to improve equitable access to MHS.

6.2.2 Healthcare Practice and Community Health Promoters

Healthcare providers and CHPs should be trained to deliver respectful, culturally sensitive, and client-centered maternity care to improve trust and service utilisation. Integrated service delivery linking ANC, delivery, PNC, family planning, and immunization should be strengthened to ensure continuity of care.

CHPs should intensify community-based health education using local languages to improve awareness on early ANC, skilled delivery, and postnatal care. Male engagement strategies should be scaled up to improve partner support in maternal health decisions. Collaboration with traditional leaders and elders is also important in addressing harmful cultural practices and strengthening referral pathways. Additionally, promoting birth preparedness and emergency planning at household level can improve timely access to care.

6.2.3 Health Partners and Stakeholders

Health partners should support community-based interventions focused on health education, behavior change, and improved access to maternal health services. Innovative solutions such as transport vouchers, emergency transport systems, and maternity support packages should be considered to reduce financial and geographic barriers. Use of accessible communication channels such as radio and community forums is recommended to reach low-literacy populations. Strong collaboration with county governments and community structures is essential for sustainability.

6.2.4 Future Research

Future research should focus on maternal health utilisation among nomadic and semi-nomadic populations to better understand context-specific barriers. Further studies should also evaluate the effectiveness of interventions such as male involvement strategies, CHP-led outreach programs, and health system strengthening initiatives. Longitudinal studies are needed to assess the long-term impact of policy and health system reforms on maternal and neonatal health outcomes.

Declarations

Human Ethics and Consent to Participate

Ethical approval for this study was obtained from the Moi University Institutional Research and Ethics Committee (Approval No. 0004656). Research authorization was granted by the National Commission for Science, Technology and Innovation (NACOSTI Permit No. 214866). Permission to conduct the study was obtained from the Samburu County Government Department of Health and relevant health facilities in Samburu East Sub-County. Written informed consent was obtained from all participants prior to participation in the study. Participation was voluntary, and confidentiality and anonymity of participants were maintained throughout the study. All methods were carried out in accordance with the principles of the Declaration of Helsinki and applicable national ethical guidelines for health research.

Consent for Publication

Not applicable.

Availability of Data and Materials

The datasets used and/or analysed during the current study are available from the corresponding author upon reasonable request.

Competing Interests

The authors declare that they have no competing interests.

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Authors' Contributions

Peter Lodokiyiaa conceptualized the study, collected data, conducted data analysis, interpreted the findings, and drafted the manuscript. Benson Milimo and Elijah Kirop supervised the study, contributed to the study design, reviewed the analysis, and critically revised the manuscript for intellectual content. All authors read and approved the final manuscript.

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Figures

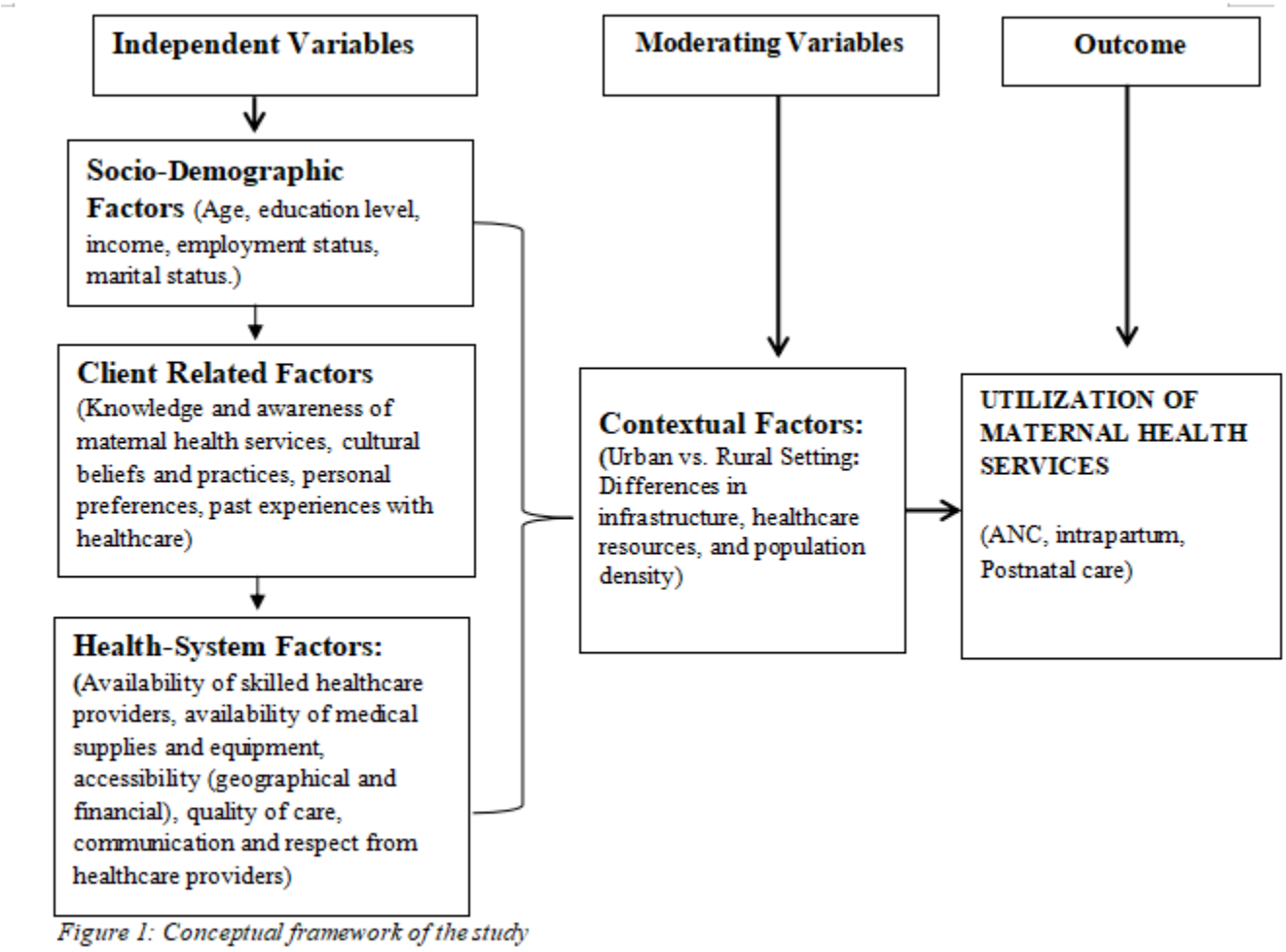


Figure 1: Conceptual framework of the study

Figure 1

Conceptual Framework of the study

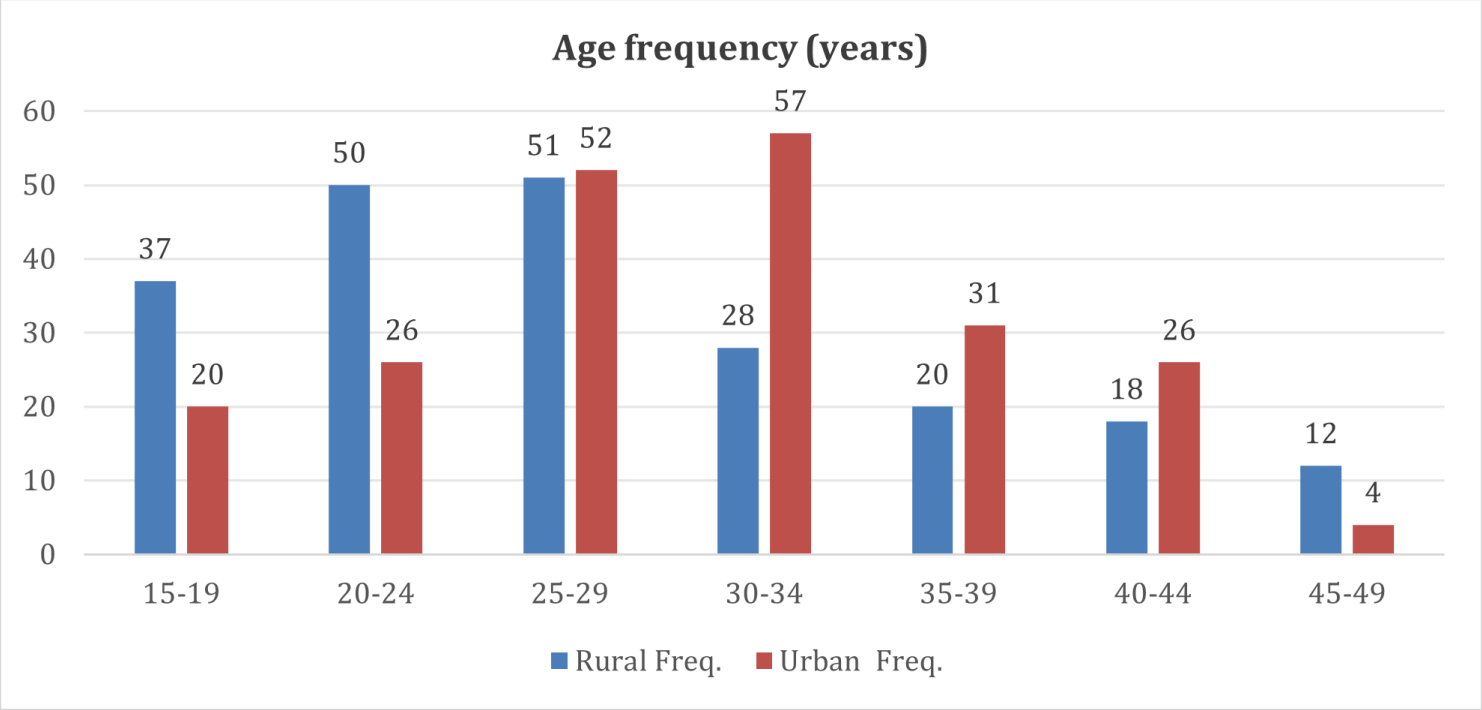


Figure 2

Age distribution of respondents by place of residence (rural and urban)