

Original Research Article

Enhancing utilization of antenatal care services through home-based life-saving skills education among pregnant women in rural Marsabit County, Kenya

Dabo Galgalo Halake^{1*}, Betsy Rono², John M. Gachohi¹

¹Department of Environmental Health and Disease Control, School of Public Health, Jomo Kenyatta University of Agriculture and Technology, Nairobi, Kenya

²Department of Health Records and Information Management, School of Public Health, Jomo Kenyatta University of Agriculture and Technology, Nairobi, Kenya

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*Correspondence:

Dr. Dabo Galgalo Halake,

E-mail: dabogalgalo@gmail.com

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ABSTRACT

Background: Low uptake of antenatal care (ANC) contributes significantly to preventable maternal and neonatal deaths, particularly in developing countries. This study evaluated the effectiveness of home-based life-saving skills (HBLSS) education on ANC utilization among pregnant women in rural Marsabit County, Kenya.

Methods: A quasi-experimental study was conducted among 256 pregnant women (128 intervention, 128 control). The intervention group received HBLSS education through structured household visits by trained community health promoters, while the control group received standard care. Data were collected at baseline and endline after nine months of the intervention. Key outcomes included ANC uptake, frequency of ANC visits and early initiation of ANC (≤ 16 weeks of gestation). Chi-square test and Difference-in-Differences analysis were used to determine the intervention effect.

Results: ANC utilization at baseline was comparable between groups ($p > 0.05$). At endline, ANC uptake increased significantly in the intervention group (97.6%) compared with the control group (91.7%, $p = 0.037$). Attendance of ≥ 4 ANC visits increased to 82.9% in the intervention group, while it decreased slightly in the control group ($p < 0.001$). Early initiation of ANC increased to 82.8% in the intervention group versus 57.3% in the control group ($p < 0.001$). Difference-in-Differences analysis indicated a significant positive impact of the intervention across all ANC indicators.

Conclusions: HBLSS education delivered at the household level improved ANC utilization, frequency of visits and early initiation of antenatal care services among the pregnant women. Community-based educational interventions can enhance maternal health service uptake in pastoralist and other underserved populations.

Keywords: Antenatal care, Community health promoters, Community-based intervention, Maternal health, Pastoralist community, Rural population

INTRODUCTION

Maternal mortality remains a significant global public health challenge, particularly in developing countries. The World Health Organization (WHO) has set a sustainable development goal (SDG) 3.1 target to reduce

the global maternal mortality ratio (MMR) to less than 70 per 100,000 live births by 2030.¹ Despite global efforts, the progress has been slow, with an estimated 810 women dying every day from preventable pregnancy-related causes; of these deaths, 94 % occur in low- and middle-income countries.¹ In Kenya, the maternal mortality ratio

is still high at 355 deaths per 100,000 live births.² This figure falls far short of the global SDG target and exhibits significant variation across regions. ANC offers comprehensive maternal health services, providing essential opportunities for health promotion, screening, diagnosis and disease prevention during pregnancy.³ However, there is variation in ANC utilization, particularly in developing countries.

The World Health Organization updated its ANC guideline in 2016, recommending at least eight ANC contacts throughout pregnancy, compared to the previous focused antenatal care (FANC) model of a minimum of four ANC visits, to enhance women's experience of maternal care and further reduce perinatal mortality.^{3,4} FANC is evidence-based, goal-directed and person-centered care that ensures a positive pregnancy experience while preventing maternal and neonatal complications.⁵ The updated ANC model further emphasizes early initiation of ANC in the first trimester and more frequent contacts to provide comprehensive pregnancy care. Despite its potential benefits, the utilization remains low in several low and middle-income countries (LMICs). A multi-country study indicates that only 13% of women across several LMICs achieved eight ANC contacts, with marked disparities between countries and lower coverage than the previous FANC model.^{6,7} These utilization gaps underscore persistent inequities in access to quality ANC, particularly among underserved populations in resource-constrained settings.

In Marsabit County, Kenya, a predominantly pastoral region, only 41% of women receive adequate antenatal care compared to the national average of 72.5%.⁸ Additionally, the traditional healthcare-seeking patterns of pastoral communities due to their nomadic lifestyle, combined with limited knowledge of pregnancy complications and available services, contribute to low ANC utilization.^{9,10} These circumstances need culturally appropriate interventions that can work within existing community structures while enhancing knowledge and promoting appropriate care-seeking behaviors.

Community-based interventions have proven effective for closing coverage gaps. Evidence suggests that community support, mobilization, education and home visits by trained community health workers can significantly reduce maternal morbidity and neonatal mortality, while increasing referrals to healthcare facilities.¹¹ A community-based approach that aligns with global recommendations, which has proven effective in various settings, is home-based life-saving skills (HBLSS) education. The HBLSS education is an innovative approach delivered through targeted health education directly to the underserved populations, addressing traditional access barriers by building local capacity to recognize complications and promote appropriate care-seeking behaviors.¹² Pastoralist communities are limited by geographic and cultural barriers to access facility-based interventions, however, such innovative approaches

like HBLSS have not been explored to overcome these barriers. This study, therefore, addresses a critical knowledge gap by evaluating the effectiveness of home-based life-saving skills education in enhancing ANC utilization among pregnant women in rural Marsabit County, Kenya.

METHODS

Study design

A pre-post-test quasi-experimental design was employed to compare ANC utilization between intervention and control groups in selected rural pastoral communities of Marsabit County, Kenya. We conducted a baseline survey among pregnant women of reproductive age in their first trimester. After nine months of implementing the home-based life-saving skills intervention, an endline evaluation was conducted.

Study setting

The study was conducted in Marsabit County, located in the Northern region of Kenya. The County covers 70,961.2 km² and it is one of the marginalized counties in Kenya with a poverty rate of 91% according to Kenya's open data poverty rate by districts. Despite the climatic conditions being Arid and Semi-Arid, the residents primarily practice agro-pastoralism. Further, the maternal health indicators of Marsabit County are below the national average. The study was carried out in two sub-counties: Sololo and Uran, which were randomly allocated to the intervention and control sites, respectively.

Study population and eligibility criteria

All pregnant women of reproductive age (15-49) years who were in their first trimester, ≤ 16 weeks of gestation and resided in the study areas for at least one year were selected from the household register and included in the study. The study excluded women who were severely ill during the survey period and those who were in transit. We recruited the study participants between April and May 2023 and conducted a baseline survey. Following the implementation of the home-based life-saving intervention, we carried out an endline survey in February 2024 to determine the effect of the intervention.

Sample size and sampling techniques

Fleiss' formula for two proportions was used to determine a 256-sample size (each arm 128). Consequently, we interrogated 256 pregnant women in the baseline survey, while 246 women (intervention arm=126 and control arm=120) were included in the end-line survey after the follow-up. Multi-stage sampling and simple random sampling techniques were used to select the study site as well as the study participants, respectively. Out of four sub-counties in Moyale constituency, two (Sololo and

Uran) were chosen as the study site. Community units (CU) in each sub-county form the cluster for choosing the respondents based on the eligibility criteria. Using the household registers of each CU, households that reported having pregnant women were randomly selected and visited by the community health promoters (CHPs) who interviewed the women for possible signs of pregnancy and confirmed using a self-pregnancy test and the last menstrual period reported after obtaining written informed consent.

Study intervention

The intervention consisted of structured HBLSS education delivered through home visits by trained CHPs. This intervention was adapted from the American College of nurse-midwives modules, which were field-tested in Liberia and Ethiopia among other African countries.¹³⁻¹⁵ Initially, ten community health promoters were selected based on the criteria of being permanent residents of the selected community units, being literate and available during the study period.

The principal investigator trained the selected CHPs on HBLSS modules for two weeks. The CHPs cascaded the training through four home visits to the recruited pregnant women and a 9 months follow-up was done in the intervention site, while the control group continued with routine services. The visits were done every trimester of the pregnancy and within two weeks of childbirth by the trained CHPs. The sessions focused on recognizing pregnancy danger signs, the importance of early and regular ANC attendance and timely referral to health facilities. Since the majority of the participants were illiterate, adult learning methods such as role play, storytelling and the use of take action card were employed to enhance understanding of the content.

Data collection method and tool

Baseline and endline data were collected by the research assistants using an interviewer-administered semi-structured questionnaire. Pre-testing of the research instrument was conducted in the neighboring sub-county to assess its accuracy and reliability. Primary data collected were: ANC uptake (receipt of care from a skilled health care provider), frequency of visits (<4 vs. ≥4) and timing of ANC initiation (≤16 weeks vs. >16 weeks of gestation).

Data analysis

Data were analysed using SPSS (version 28.0). Descriptive statistics were used to summarize participants' characteristics. Chi-square test compared changes in proportions of the level of ANC service utilization between study groups pre-post intervention. The difference in difference (DiD) model estimated the net effect of the intervention by comparing the difference in proportions in each outcome over time between the

study groups. DiD estimates are presented together with the p values. P<0.05 was deemed statistically significant.

RESULTS

Table 1 presents the sociodemographic characteristics of the 256 study participants (128 in each group) at baseline. The majority of participants (intervention: 59.4%, control: 66.4%) were young adults aged 20 to 29 years. Muslims were predominant in both groups (intervention: 70.3%, control: 57.0%) and the majority were married (intervention: 92.9%, control: 93.7%). Educational attainment was low in both groups, with the majority having no formal education (intervention: 63.3%, control: 58.6%).

Very few participants had reached college level (intervention: 5.5%, control: 3.9%). Pastoralism was the main source of income for the majority of participants, while only small proportions had formal employment (intervention: 3.9%, control: 5.5%). The majority of participants earned relatively low incomes, with 68.0% in the intervention group and 70.3% in the control group earning less than 10,000 Kenyan shillings. Only small proportions earned more than 30,000 Kenyan shillings. Chi-square analysis revealed no statistically significant differences between the intervention and control groups across all sociodemographic variables (p values >0.05), indicating comparability of the groups at baseline. Table 2 compares antenatal care utilization between the intervention (n=128 at baseline, n=126 at endline) and control (n=128 at baseline, n=120 at endline) groups. We measured ANC utilization in terms of key indicators, such as receipt of ANC services from a skilled provider, frequency of visits and timing of initiation, as per the WHO guideline. In the current study, we considered the previously WHO-recommended frequency of ANC visits (<4 times or ≥4 times) and timing of initiation, ≤16 weeks or >16 weeks of gestation, since the ANC coverage in this county was low.

At baseline, both groups showed comparable ANC uptake, with approximately 82% of pregnant women in the intervention group and 84% in the control group having received ANC services. This difference was not statistically significant ($\chi^2=0.44$, $df=1$, $p=0.508$). At endline, ANC uptake in the intervention group increased to 97.6% compared with 91.7% in the control group, resulting in a statistically significant difference ($\chi^2=4.35$, $df=1$, $p=0.037$). The intervention led to a reduction from 18.1% to 2.4% of women not receiving ANC in the intervention group, representing 87% reduction in the non-uptake rate. Regarding the frequency of ANC visits, 67.3% of women in the intervention group and 62.0% in the control group attended at least four ANC visits at baseline. However, the proportion of women with ANC visits of 4 or more was not statistically significant between the intervention and control groups ($\chi^2=0.64$, $df=1$, $p=0.422$), suggesting that the baseline comparability of the study groups in terms of completing

the recommended number of visits was maintained. At the endline, the proportion of women who attended at least four ANC visits increased to 82.9% in the intervention group with a 15.6 percentage point rise,

while the proportion in the control group slightly declined to 60.9% (a decrease of 1.1 percentage point) with a significant difference between the groups ($\chi^2=14.13$, $df=1$, $p<0.001$).

Table 1: Baseline socio-demographic characteristics of the respondents by group, N (%).

Variable	Category	Intervention-128 (100)	Control -128 (100)	χ^2 value	df	P value
Age group (in years)	≤19	8 (6.2)	13 (10.2)	4.34	2	0.114
	20-29	76 (59.4)	85 (66.4)			
	≥30	44 (34.4)	30 (23.4)			
Religion	Christian	31(24.2)	49 (38.3)	5.90	2	0.052
	Muslim	90 (70.3)	73 (57.0)			
	No religion	7 (5.5)	6 (4.7)			
Marital status	Single	2 (1.6)	0 (0.0)	4.74	4	0.315
	Married	119 (92.9)	120 (93.7)			
	Divorced	1 (0.8)	2 (1.6)			
	Widowed	4 (3.1)	6 (4.7)			
	Separated	2 (1.6)	0 (0.0)			
Level of education	None	81 (63.3)	75 (58.6)	1.34	3	0.719
	Primary	30 (23.4)	37 (28.9)			
	Secondary	10 (7.8)	11 (8.6)			
	College	7 (5.5)	5 (3.9)			
Source of income	Pastoralism	80(62.5)	78 (60.9)	2.83	3	0.419
	Business	24 (18.8)	31 (24.2)			
	Employment	5 (3.9)	7 (5.5)			
	Casual laborer	19 (14.8)	12 (9.4)			
Household income (KSHs)	<10,000	87 (68.0)	90 (70.3)	0.72	2	0.697
	10000-30000	35 (27.3)	30 (23.4)			
	>30000	6 (4.7)	8 (6.3)			

Table 2: Comparison of the level of utilization of antenatal care services in the study arms at baseline and endline using Chi square test.

Comparison of the respondents' level of utilization of antenatal care services in the study arms before and after the intervention, N (%)										
Variables	Baseline		χ^2 value	df	P value	Endline		χ^2 value	df	P value
	Intervention (n=128)	Control (n=128)				Intervention (n=126)	Control (n=120)			
Received antenatal care services										
Yes	104 (81.9)	108 (84.4)	0.44	1	0.508	123 (97.6)	110 (91.7)	4.35	1	0.037
No	24 (18.1)	20 (15.6)				3 (2.4)	10 (8.3)			
Number of times received ANC services										
<4 times	34 (32.7)	41 (38.0)	0.64	1	0.422	21 (17.1)	43 (39.1)	14.13	1	<0.001
≥4 times	70 (67.3)	67 (62.0)				102 (82.9)	67 (60.9)			
When started receiving ANC services										
≤16 weeks	55 (52.9)	62 (57.4)	0.44	1	0.508	102 (82.8)	63 (57.3)	18.49	1	<0.001
>16 weeks	49 (47.1)	46 (42.6)				21 (17.2)	47 (42.7)			

Table 3: Difference in Difference analysis of the effect of the intervention on utilization of antenatal care services between intervention and control groups at baseline and endline.

Outcome variables	Difference in the intervention arm			Difference in the control arm			Contribution
	E (%)	B (%)	Diff	E (%)	B (%)	Diff	DiD Estimates
Attended antenatal care	97.6	81.9	15.7	91.7	84.4	7.3	8.4***
Number of ANC visits ≥4 times	82.9	67.3	15.6	60.9	62	1.1	16.7***
ANC initiation timing ≤16 weeks	82.8	52.9	29.9	57.3	57.4	-0.1	30.0***

***p<0.001; E, endline; B, baseline; Diff, Difference; DiD, the difference in differences.

Before the intervention, the proportion of women who initiated ANC visits at less than 16 gestational weeks was

52.9% in the intervention group and 57.4% in the control group, indicating a similar pattern of early ANC initiation in both groups. A non-statistically significant difference

was observed between the study groups ($\chi^2=0.44$, $df=1$, $p=0.508$), further confirming this. Endline results showed a significant increase (29.9 percentage points) in the proportion of women who initiated ANC visits earlier, at less than 16 weeks within the first trimester of pregnancy, in the intervention group (82.8%) compared to the control group (57.3%). This difference was also statistically significant between the groups ($\chi^2=18.49$, $df=1$, $p<0.001$), representing a 57% increase in early ANC initiation after the intervention.

Further, authors employed a DiD analysis to estimate the net effect of the intervention on ANC utilization by comparing changes over time (baseline and endline) between the intervention and control groups, as shown in Table 3. The DiD model accounts for any baseline difference and time-invariant confounders, thereby demonstrating the true effect of the intervention. DiD estimates confirmed that the HBLSS intervention had a statistically significant positive effect across all ANC utilization indicators.

Overall, the intervention improved ANC attendance by a net increase of 8.4 percentage points, increasing the uptake in the intervention group from 81.9% to 97.6% compared to minimal changes in the control group. Regarding the completion of the recommended four or more ANC visits, a net intervention effect of 16.7 percentage points was observed, leading to a significant improvement in the intervention group, while there was a slight decline in the control group. There was also a net increase of 30 percentage points in early ANC initiation (<16 weeks of gestation), attributable to the intervention. Early ANC initiation in the intervention group increased by 29.9 percentage points, while a slight decline of 0.1 percentage points in the control group was noted.

DISCUSSION

The present study demonstrated that HBLSS education delivered at the household level by community health volunteers significantly improved ANC utilization, increasing uptake, early initiation and the frequency of visits among pregnant women in rural Marsabit County. In the current study, women who received HBLSS education were more likely to attend ANC, complete the recommended four or more visits and initiate the visit early in the first trimester of pregnancy, suggesting that household-level interventions can effectively enhance utilization of ANC in underserved pastoral communities. These findings align with the growing evidence base that supports the effectiveness of targeted, community-based interventions in improving maternal health service utilization in low-resource settings. The observed increase in ANC attendance in the current study aligns with findings from similar community-based interventions in other low-resource settings. Studies in Ethiopia and Northern Ghana found that community health worker-led home visits and maternal health education significantly increased attendance of antenatal care visits and improved

continuity of care.^{5,16} A similar randomized study in Tanzania reported improved ANC use following household educational sessions focused on recognizing danger signs and preparing for childbirth.¹⁷ This substantial increase in ANC uptake demonstrates the potential of the HBLSS intervention to overcome structural barriers in vulnerable populations.

Our results are also consistent with a study conducted in Eastern Uganda, which found that a community health volunteer-led intervention significantly increased completion of four or more ANC visits (DiD=5.5%).¹⁸ Contrary to our study findings, the same study reported that the intervention did not affect early initiation of ANC. Similarly, a cluster-randomized trial in Dar es Salaam reported an increase in ANC visits of four or more, the effect on early initiation of care was not statistically significant. This highlights the challenges of shifting the ANC initiation timing and frequency of care in different settings.

The intervention's substantial improvement of early ANC initiation observed in our study is very crucial in pastoralist communities, considering their common delays in seeking care. Early initiation of ANC is not only beneficial to mothers but also to their newborns in terms of prompt identification and management of pregnancy-related complications.³ These findings emphasize on the need to integrate culturally sensitive, household-based education into routine maternal health interventions, particularly for underserved populations that may not benefit exclusively from facility-based care.

Community-based education using a home-based approach improved ANC utilization by enhancing maternal knowledge, strengthening household decision-making and promoting positive health-seeking behavior. Systematic reviews indicate that CHWs effectively link households to the health system, particularly in underserved populations, thereby improving both maternal and neonatal outcomes.^{19,20} The effectiveness of such community-based interventions is based on their adaptation to local context, tailored-made refresher training of CHWs and integration into existing health systems.²¹ Overall, these findings reinforce the value of HBLSS education as a feasible approach to improve uptake of ANC services in pastoralist and other hard-to-reach communities.

Limitations

The quasi-experimental design used in this study lacks randomization. However, at baseline, the sociodemographic characteristics of the intervention and control groups were comparable. ANC data collected were self-reported, potentially introducing recall bias, which was minimized by confirming the data with maternal and child health booklets where they are available. In addition, the study focused on ANC visits of four or more per the earlier WHO guideline due to low

ANC coverage in pastoral communities, which may limit comparison with the current eight-contact recommendation.

CONCLUSION

Participation in HBLSS education through home visits by CHVs significantly improved ANC utilization, including uptake, visit frequency and early initiation, among pregnant women in rural Marsabit County compared with routine facility-based health education. The success of this intervention in the underserved pastoral population with low formal education and income provides encouraging evidence for the potential to reduce health inequities through well-designed, contextually appropriate interventions. Integrating HBLSS education into routine community health programs can effectively enhance maternal health service utilization in underserved populations.

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REFERENCES

1. Onambele L, Ortega-Leon W, Guillen-Aguinaga S. Maternal mortality in Africa: Regional trends (2000–2017). *Int J Environ Res Public Health*. 2022;19(20):13146.
2. Machio PM. Association between maternal employment and child stunting in Kenya. *BMC Public Health*. 2026;2:46-9.
3. Lawrie T. WHO recommendations on antenatal care for a positive pregnancy experience-going beyond survival. *Int J Obstetr Gynaecol*. 2017;3:788-9.
4. Ayele BA, Holliday E, Chojenta C. Determinants of antenatal care service utilisation in sub-Saharan Africa: an analysis of demographic and health surveys data (2015–2022). *Arch Publ Heal*. 2025;83(1):189.
5. Shiferaw K, Mengistie B, Gobena T, Dheresa M, Seme A. Extent of received antenatal care components in Ethiopia: a community-based panel study. *Int J Women's Health*. 2021;53:803-13.
6. Ekholuenetale M. Prevalence of eight or more antenatal care contacts: findings from multi-country nationally representative data. *Glob Pediatr Health*. 2021;8:45822.
7. Belay DB, Fenta HM, Birhan NA, Rad NN, Chen DG. Spatial disparities of antenatal care utilization among pregnant women in sub-Saharan Africa—Bayesian geo-additive modelling approach. *Front Publ Heal*. 2025;13:6586.
8. Galgalo DA, Mokaya P, Chauhan S, Kiptulon EK, Wami GA, Várnagy Á, et al. Utilization of maternal health care services among pastoralist communities in Marsabit County, Kenya: a cross-sectional survey. *Reproductive Health*. 2024;21(1):126.
9. Barako TD, Spiby H, Evans C, Konstantinidis S. Understanding antenatal care use in pastoralist communities: a focused ethnographic study in Kenya. *African J Midwif Women's Heal*. 2023;17(2):1–13.
10. Gammino VM, Diaz MR, Pallas SW, Greenleaf AR, Kurnit MR. Health services uptake among nomadic pastoralist populations in Africa: A systematic review of the literature. *PLoS Negl Trop Dis*. 2020;14(7):8474.
11. Lassi ZS, Kumar R, Bhutta ZA. Community-based care to improve maternal, newborn, and child health. 2016. Available at: <http://www.ncbi.nlm.nih>. Accessed on 21 August 2025.
12. August F, Pembe AB, Mpembeni R, Axemo P, Darj E. Effectiveness of the Home-Based Life Saving Skills training by community health workers on knowledge of danger signs, birth preparedness, complication readiness and facility delivery, among women in Rural Tanzania. *BMC Pregn Childbirth*. 2016;16(1):129.
13. Buffington ST, Sibley LM, Beck DR, Armbruster DA. Home based life saving skills. *American Coll Nurse-Midw*. 2010;3:76.
14. Sibley L, Buffington ST, Tedessa L, McNatt K. Home-Based Life Saving Skills in Ethiopia: An Update on the Second Phase of Field Testing. *J Midwif & Women's Health*. 2006;51(4):284–91.
15. Lori JR, Amable EE, Mertz SG, Moriarty K. Behavior change following implementation of home-based life-saving skills in Liberia, West Africa. *J Midwif Women's health*. 2012;57(5):495–501.
16. Kassim AB, Newton SK, Dormechele W, Rahinatu BB, Yambom CT, Yankson IK, et al. Effects of a community-level intervention on maternal health care utilization in a resource-poor setting of Northern Ghana. *BMC Public Health*. 2023;23(1):1491.
17. Ramsey K, Hingora A, Kante M, Jackson E, Exavery A, Pemba S, et al. The Tanzania Connect Project: a cluster-randomized trial of the child survival impact of adding paid community health workers to an existing facility-focused health system. *BMC Health Serv Res*. 2013;13(2):S6.
18. Wafula ST, Nalugya A, Kananura RM, Mugambe RK, Kyangwa M, Isunju JB, et al. Effect of community-level intervention on antenatal care attendance: a quasi-experimental study among postpartum women in Eastern Uganda. *Global Health Action*. 2022;15(1):2141312.
19. Gupta A, Khan S. Importance of community health workers for maternal health care management. *Public Health Rev*. 2024;22:45:1606803.
20. Scharff D, Enard KR, Tao D, Strand G, Yakubu R, Cope V. Community health worker impact on knowledge, antenatal care, and birth outcomes: a systematic review. *Matern Child Health J*. 2022;26(1):79–101.

21. Kachimanga C. Leveraging Community Health Workers to Improve Access to Maternity Care in Rural Sub-Saharan Africa. 2025.

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