Influence of Community Based Health Education on Family Planning Use among Pastoralist Women of Reproductive Age in West Pokot County, Kenya: A quasi-experimental study

Samuel Lopar Kipunaa[1*], Mary Kipmerewo[2], and Alex Chebor[3]

[1]*Department of Nursing and Clinical Studies, School of Health Sciences, Mama Ngina University College, Kiambu, Kenya;* [2]*Department of Reproductive Health, Midwifery and Child Health, School of Nursing, Midwifery and Paramedical Sciences, Masinde Muliro University of Science and Technology, and* [3]*Department of Community Health and Extension, School of Nursing, Midwifery and Paramedical Sciences, Masinde Muliro University of Science and Technology, Kenya*

***Corresponding author**: Samuel Kipunaa Lopar. Email address: loparsmmy@gmail.com
ORCID: https://orcid.org/0000-0003-2636-6660

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Abstract

Introduction: Utilisation of contemporary family planning techniques is a good intervention that prevents pregnancy-related health risks for women. However, its utilisation among pastoralist communities is far below the global and national targets and averages. The study aimed to evaluate the influence of community-based health education on contraceptive adoption rates among women of reproductive age in pastoralist areas in West Pokot County, Kenya.

Methodology: This study employed a pre-test post-test quasi-experimental design. Study participants were grouped into intervention and control arms, where participants in the intervention arm received health education for a period of six months. The baseline and post-test survey was conducted among 578 respondents, 289 in each arm. Quantitative data were collected using a structured questionnaire, while Key informant interviews and Focused Group Discussion guides were used for qualitative data. Quantitative data were analysed using STATA version 16, and a logistic regression test was used to establish a correlation between variables. The odds ratios (ORs) with their 95% confidence intervals (CIs) were reported. A P-value of < 0.05 was considered significant. Thematic analysis was employed to analyse the qualitative data.

Results: The study revealed a significant increase in family planning uptake at the conclusion of the intervention period. The percentage of women who reported ever using a family planning method rose from 143 (24.7%) at baseline to 193 (33.4%) post-intervention ($p=0.01$). Similarly, current FP use increased from 20.4% (118) to 28.9% (167) in the same period ($p<0.01$). 57 (9.8%) reported moderate intention, while 58 (10%) reported a strong intention to use it in the future.

Conclusion: Community-based health education positively influenced family planning uptake and acceptance among women in pastoralist communities. The study recommends integrating culturally sensitive intervention strategies to enhance FP adoption in pastoralist settings. Additionally, advocates for future studies to investigate the long-term effects of community-based health education on the use of contraceptives, and its impact on mother and child health outcomes.

Keywords: *Family Planning, Community-based Health Education, Influence, West Pokot, Pastoralism*

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Introduction

The practice of family planning is recognised as a vital element of reproductive wellness, which is crucial for managing growing populations and enhancing the well-being of mothers and children (1). Globally, the accessibility of contraception services for women remains a pressing issue in the fields of public health and social spheres. The World Health Organization reports that there is a substantial

unmet need for contemporary contraceptive methods, with an estimated 214 million women of reproductive maturity wishing to prevent pregnancy unable to utilise any form of birth control, hence a significant unmet demand for contraceptive methods in this era (2). Compared to international and national benchmarks, pastoralist societies continue to adopt the use of contemporary family planning (FP) techniques at a lower rate (3). Despite the capacity to avert unwanted pregnancies, only 23% of pastoralist women in West Pokot County use modern contraceptives (4). Further, there is a significant gap in the unmet demand for reproductive health services, evidenced by the fertility rate of 7.2% in West Pokot County compared to the nation's national average of 3.9% (4). There is a continuous, significant unmet demand for modern techniques of contraception within the pastoralist communities of West Pokot.

Family planning is an important but underused health intervention in pastoralist communities, where norms related to culture, limited access to healthcare and lack of knowledge result in consistently high fertility rates as well as poor maternal health outcomes (5). Pastoralist women face unique challenges in making informed reproductive choices because of the challenges related to geographic isolation, gender inequality and false beliefs about contraception; these, among others, must be overcome to make educated reproductive decisions in those settings (6).

Providing culturally appropriate information through trustworthy locals and channels has proven to be an effective strategy for enhancing the adoption of FP in underserved communities. Community engagement initiatives should be prioritised to dispel misconceptions and promote acceptance of contraception, which has become a successful tactic to increase FP adoption in underserved communities (7).

Community-based distributors are excellent individuals to implement FP strategies; they are better positioned to engage people in communities that have limited access and are marginalised (8). This technique utilises personnel who live on site to offer treatments that would otherwise require the woman to make many trips to facilities distant from her neighbourhood. This method has enhanced the availability of reproductive healthcare, made it more accessible and boosted contraceptive effectiveness in many parts of the world (9).

Involving community health professionals in the delivery of healthcare services, like contraceptive services, in remote zones may be cost-effective and sustainable (10). Numerous FP programmes utilise well-informed volunteers who are recognised and respected in the countryside to raise awareness about contraception by delivering family planning information, evaluating and advising potential clients, and referring them to affiliated health facilities to select a preferred method. This decreases obstacles to accessibility and stigma associated with contraception in pastoral community contexts where large families are perceived as the norm lifestyle. Moreover, it will stimulate interest in the utilisation of FP techniques (11).

A lot of research has been conducted on the roles of community health volunteers in promoting health care services in general, there is limited focus on the contribution of increasing family planning uptake in hard-to-reach areas of pastoralists. Consequently, in the context of community-based interventions, the usage of contraceptives among the pastoralists remains ‘hidden’ within the formal framework of health care delivery. Numerous current studies extrapolate outcomes to broader communities or focus exclusively on urban environments, leading to a deficiency in understanding the specific requirements and reactions of pastoralist women. The study sought to address this deficiency by providing targeted insights into this unique demographic.

Methodology

Study design and setting

This study applied a quasi-experimental design. It adopted a mixed method approach; both quantitative and qualitative designs to bring

synergy to the study, thus increasing the reliability and validity of the results. This design was appropriate at the population level, evaluating the effectiveness of Health Education intervention in community settings. This design allowed comparison of the change in FP uptake and human behaviour before and after the intervention.

Study site

The research was done in West Pokot County, which has a population of about 673,757 per the 2019 census and a 3.1% growth rate. It is in northwest Kenya and borders Uganda to the West, Baringo and Elgeyo-Marakwet counties to the East and southeast, respectively, and Trans-Nzoia and Turkana Counties to the south and north, respectively. Pastoralism is the primary way of life for most of the people of this county. The County is served by four (4) hospitals, eight (8) health centres, one hundred and forty-two (42) dispensaries and two hundred and fifty-two (252) community health units, with a poor road network that was impassable during rainy seasons, making it hard to reach.

Study population

The targeted population was women of sexual maturity from pastoralist villages in West Pokot County. This group (15- 49 years) was the recipient of family planning health services. Seven key informants' interviews (KIIs) who were County and sub-county department of health officials involved in the management of community health services and directly supervise community-based distributors were purposively sampled.

Sample size and Sampling

This study adopted the Fleiss JL formula was appropriate for comparing the two proportions as indicated below (12):

$$n= \frac{[(z\alpha/2+z\beta)^2 \times (p1\ (1-p_1) + p_2\ (1- p_2)]}{(p_1- p_2)^2}$$

$Z\beta$ = the critical value of the normal distribution at β (for a power 80%, β is 0.2 = 0.84

P_1= the expected sample proportion of respondents by means of family planning techniques under control cluster = 3.4% = 0.034

P_2 = the expected sample proportions of respondents by means of family planning techniques under the intervention cluster at the post-test level = 10% = 0.1

$$n= \frac{[(1.96+ 0.84)^2 \times 0.034(1- 0.034) + 0.1(1-0.01)]}{(0.034- 0.1)^2}$$

= 222

$Z\alpha/2$ = the confidence level of 95% (α is 0.05=1.96)

To address the issue of non-responses, 30% was added to the least sample. Therefore, the total number of respondents was 578. Since the ratio is 1:1, then 278 respondents were in the intervention arm, and 278 were in the control arm of the study.

Multistage cluster sampling (sub-counties and community units) was employed to get the study area. Forty established community health units (CHUs) were randomly selected then randomly allocated to either treatment or control groups (22 CHUs for intervention and 18 CHUs Control); and random sampling technique was used to select the respondents in both arms of the study; the intervention and control clusters sampled were far distant in terms of geographical area and access points of services delivery to avoid any possible contamination. The study participants in both groups were in the ratio of 1:1. Women of reproductive age who participated in focused group discussions were sampled purposively to demonstrate the broad range of women in the contexts to maintain heterogeneity; each group comprised 12 participants.

Study procedure

The research was done in three stages as follows: Stage I, we conducted a baseline survey in both treatment and control arms of the research in the month of May 2024; the objective was to determine the adoption of contraceptives. This was to act as a benchmark and set the basis for the intervention. Stage II was the recruitment and training of Community-Based Distributors in West Pokot Sub-County (intervention arm), whose basis was the Ministry of Health community health volunteers training Module 12 -Family Planning. Each CBD was allocated one

Community Health Unit to manage, he/she was visiting household and community meetings to deliver health education messages. The targeted messages were on contemporary contraceptive methods, benefits and side effects; the intervention took six months (June - November, 2024). The parallel cluster (control arm) was receiving normal standard MOH services for the same period. Stage III was the administration of a post-test after the completion of the intervention. The intervention cluster was likened to the control group in terms of the use of FP and intention to use.

Data collection

The study utilised three instruments at pre-test and post-intervention. Structured questionnaires were used for collection of quantitative data, including socio-demographic characteristics. The contraceptive usage level within the investigated area was associated with Society-Based health awareness, which was thought to influence contraceptive adoption in the rural society. Qualitative data gathered using Focused Group Discussion and KII guides offered valuable perspectives on the collective comprehension of the practice of contraception within the larger society, as well as the societal variables which impact it. The attainment of saturation for the focus group discussions was realised through the conduction of seven distinct FGDs. The key informant interview yielded additional insights into the impact of CBHE on FP utilisation, with saturation attained after conducting seven comprehensive interviews. A Cronbach Alpha analysis was performed to assess the reliability of the data collection instrument, utilising pretest data gathered from a representative group of 58 respondents in Kipkomo sub-county. The findings indicated acceptable internal consistency, with Cronbach's alpha test (α) = 0.89, 0.88, 0.80, 0.70, and 0.66, respectively.

Data analysis

Quantitative data were analysed using STATA version 16. The chi-square test was used to establish the correlations among the independent and dependent variables. The variables that revealed to have a significant correlation with the outcome variable after being subjected to multivariate logistics regression to determine predictors of uptake of family planning at baseline and post-intervention. The odds ratio with its confidence intervals at 95% was tested. A P-value of < 0.05 was considered significant.

Qualitative data were analysed using NVivo 12 Pro. Thematic analysis was done to summarise qualitative data; this was done by use of coding procedures and theme detection using qualitative data obtained from FGDs and KIIs. To improve credibility, triangulation uses more than one source. Data source triangulation contrasted results between key informant interviews and FGDs.

Ethical considerations

The authorisation to collect data was secured from the National Commission for Science, Technology, & Innovation (NACOSTI-417540); the Scientific & Ethics Review Committee of Masinde Muliro University (MMUST/ISREC/043/2024); and the Department of Health - West Pokot County. The participants in the study offered verbal informed permission before their involvement.

Results

Socio-demographic characteristics

About 58% (670) of the respondents were aged between 14 and 29 years; there was no difference between the pre-test 342 (59.2%) and post-test 328 (56.7%) study population. At baseline, a majority (86.3%, n=499) were married, and 46 (8%) were single. In addition, the distribution of marital status didn't change significantly in the post-test (p=0.48). Approximately 75% (865) possessed either little to no schooling or did not complete their basic education, while 128 (11.1%) had achieved intermediate or higher learning. The majority, 474 (82%), were pastoralists or not employed.

Family planning knowledge and awareness

The percentage of women who reported FP awareness improved significantly ($p<0.01$)

from 351 (60.7%) at baseline to 450 (77.9%) during the post-test, similar to those who reported knowing 3 FP methods, 44.8% to 61.9% and those who reported knowing at least 1 LARC, 210 (36.3%) to 316 (54.7%).

At baseline, the treatment group had a significantly lower awareness level of 165 (57.1%) compared to the control group of 186 (64.4%).

Table 1
Socio-demographic Characteristics of the Study Participants

Variables	Pretest , N=578	Posttest, N=578	Total, N=1,156	p-value
Age				0.40
14-29	342 (59.2)	328 (56.7)	670 (58.0)	
30-49	236 (40.8)	250 (43.3)	486 (42.0)	
Marital status				0.48
Married	499 (86.3)	514 (88.9)	1,013 (87.6)	
Single	46 (8.0)	33 (5.7)	79 (6.8)	
widow	18 (3.1)	16 (2.8)	34 (2.9)	
Divorced/separated	15 (2.6)	15 (2.6)	30 (2.6)	
Religion				<0.01
No religion	29 (5.0)	33 (5.7)	62 (5.4)	
Christian- Catholic	100 (17.3)	151 (26.1)	251 (21.7)	
Christian- Protestant	371 (64.2)	323 (55.9)	694 (60.0)	
Muslim	5 (0.9)	16 (2.8)	21 (1.8)	
Others- Specify	73 (12.6)	55 (9.5)	128 (11.1)	
Education				0.93
None	236 (40.8)	241 (41.7)	477 (41.3)	
Primary- Not completed	200 (34.6)	188 (32.5)	388 (33.6)	
Primary- completed	81 (14.0)	82 (14.2)	163 (14.1)	
Secondary	43 (7.4)	45 (7.8)	88 (7.6)	
college/university	18 (3.1)	22 (3.8)	40 (3.5)	
Occupation				0.29
None	169 (29.2)	187 (32.4)	356 (30.8)	
Formal employment	15 (2.6)	17 (2.9)	32 (2.8)	
farmer(pastoralist)	305 (52.8)	291 (50.3)	596 (51.6)	
Business	81 (14.0)	81 (14.0)	162 (14.0)	
Others (specify)	8 (1.4)	2 (0.3)	10 (0.9)	

Table 2
Family Planning Awareness in the Study Area

Variables	Pretest N=578	Posttest N=578	Total N=1,156	p-value
FP Awareness				<0.01
Yes	351 (60.7)	450 (77.9)	801 (69.3)	
No	227 (39.3)	128 (22.1)	355 (30.7)	
Source of information				<0.01
Radio/TV/Newspaper	49 (13.7)	49 (10.7)	98 (12.0)	
Hospital workers	212 (59.2)	200 (43.9)	412 (50.6)	
Friends	87 (24.3)	86 (18.9)	173 (21.3)	
CBD	9 (2.5)	120 (26.3)	129 (15.8)	
Church	1 (0.3)	1 (0.2)	2 (0.2)	
Know 3 FP methods				<0.01
Yes	259 (44.8)	358 (61.9)	617 (53.4)	
No	319 (55.2)	220 (38.1)	539 (46.6)	
Knows at least 1 LARC				<0.01
Yes	210 (36.3)	316 (54.7)	526 (45.5)	
No	368 (63.7)	262 (45.3)	630 (54.5)	

However, the treatment group had a significantly ($p<0.01$) higher proportion of 259 (89.6%) with awareness in comparison to the control cluster 191 (66.1%). The proportion increase of people who reported awareness, which could be ascribed to the intervention, was 30.8% (89). FP awareness had a significant ($p<0.05$) association with uptake; those who had FP awareness were 6.3 times more likely to be users compared to those who were not aware.

Contraceptives uptake

The percentage of participants whose reports indicated having ever used a FP method increased significantly ($p<0.01$) from 143 (24.7%) at baseline to 193 (33.4%) during the post-test survey same as those who reported current on family planning method ($p<0.01$) from 118 (20.4%) to 167 (28.9%) in the same period. Those who reported currently on method, half 143 (50.4%) were on the implant, and 109 (38.4%) were on injectable contraceptives, and very few 5 (1.8%) were using an intrauterine contraceptive device and pills 27 (9.5%). The overall increase in usage of contraceptives could be attributed to the intervention, which was 44 (13.5%) and was significant ($p<0.01$). Similarly, there was a significant ($p<0.01$) association between the uptake of FP methods and the time of research, and the uptake of FP increased by 49 (8.5%) from 118 (20.4%) at the pre-test to 167 (28.9%) at the post-test.

Table 3
Contraceptive Uptake in the Pastoral Settings of West Pokot

	Pretest	Posttest	Total	p-value
Variables	**N=578**	**N=578**	**N=1,156**	
Having used the family planning technique				<0.01
Yes	143 (24.7)	193 (33.4)	336 (29.1)	
No	435 (75.3)	385 (66.6)	820 (70.9)	
Currently on a family planning method				<0.01
Yes	118 (20.4)	167 (28.9)	285 (24.7)	
No	460 (79.6)	411 (71.1)	871 (75.3)	
If currently on FP, which method				0.63
Pills	9 (7.4)	18 (11.1)	27 (9.5)	
Injectable	51 (41.8)	58 (35.8)	109 (38.4)	
IUCD	2 (1.6)	3 (1.9)	5 (1.8)	
Implant	60 (49.2)	83 (51.2)	143 (50.4)	

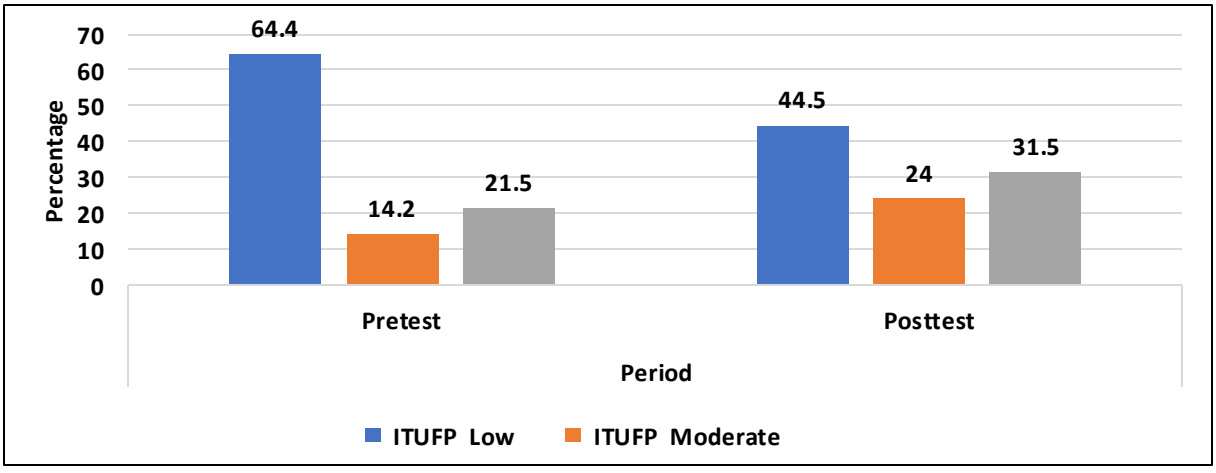

Figure 1
Association between ITUFP and Study Period

Intention to use family planning

The percentage of respondents who reported moderate intention to use FP increased from 82 (14.2%) at baseline to 139 (24%) at post-test, and the proportion who reported high intention increased from 124 (21.5%) to 182 (31.5%). The change in the proportions was significant ($p<0.01$).

Effects of community-based health education on FP uptake

At baseline, there were no significant (diff=3.5% (10), p=0.32) differences in the current use of contraceptives between the control 54 (18.7%) and intervention 64 (22.1%) groups. However, during the post-test, use of contraceptives was significantly ($p<0.01$) higher, 108 (37.4%), among the intervention clusters in comparison with the control clusters, 54 (20.4%). The overall increase in contraceptive use that could be ascribed to the intervention was 44 (13.5%) and was significant ($p<0.01$).

Qualitative analysis revealed two primary themes; contraceptive knowledge and facilitators of service utilisation. Participants indicated a substantial enhancement in knowledge and awareness following the implementation of the intervention. These show that the intervention helped raise awareness and get more people to use it. This was evidenced during FGD and KII (Table 5).

Discussion

The study found family planning uptake was initially low; however, the intervention produced a significant improvement, with first-time users increasing from 24.7% to 33.45%. Due to cultural norms in pastoralist communities, the overall uptake of FP likely fell short of the national average; however, community-based engagement greatly increased its adoption in areas where traditional beliefs limit its use.

These findings align with research conducted in Ethiopia, which reported that women in the intervention cluster were likely to utilise FP methods compared to those in the control group (13). However, this is not the case in Mozambique (14). Community-based engagements had a significant influence on FP uptake, and there was a change in attitude towards FP usage. The intervention had an important positive impact on the uptake, which increased from 22.1% to 37.4% ($p<0.001$).

Table 4

Influence of Community-based Health Education on Contraceptive Uptake in the Study Area

	Outcome var.	Current Use	Err.	t	P>t
Baseline	Control	0.187			
	Treated	0.221			
	Diff (T-C)	0.035	0.035	0.98	0.32
Follow-up	Control	0.204			
	Treated	0.374			
	Diff (T-C)	0.17	0.035	4.79	<0.01
	Diff-in-Diff	0.135	0.05	2.7	<0.01

Table 5

Summary of Themes and Subthemes with Relevant Quotes from the Study

Theme	Subthemes	Relevant quotes
Contraceptive knowledge	Improved awareness	*"When the community-based distributors come to our homes, they tell us about family planning and the different ways it can help us take better care of our families." (FGD2, Respondent 3)*
Enabler of service use	Effectiveness	*"Yes, things have gotten a lot better since community education started. When I first started in 2020, we did not get many clients for birth control. Thanks to the work of community-based distributors we now serve at least eight clients a month." (KII 5)*

These results align with study findings from Uganda by(15), which indicated Community-Based Health Education reduced stigma associated with contraceptive use and enhanced both the uptake and intention to use in future. Similarly, the results were observed in India, indicating a significant increase in FP adoption among women who received household visits from CHVs and contemplated family planning (16). It concurs with a study from Ethiopia that demonstrated CBHE significantly enhanced FP demand and transformed women's attitudes towards its utilisation (17).

(18) They also concur with findings from a study in Ethiopia indicating that community health education engagements enhanced knowledge and utilisation of FP. A study conducted in Sudan indicated a significant rise in the level of FP practices among the studied populations that participated in educational programs (19). This study's results contradict those from a study conducted in Pakistan that reported low adoption of family planning despite the presence of educational programs in the community and households (20).

In qualitative data, participants emphasised CBHE as an effective instrument for dispelling myths and misconceptions related to FP, enhancing knowledge, fostering a positive attitude and mitigating stigma. One key informant noted a rise in the number of clients seeking family planning services following the implementation of community-based health education, with at least eight clients per month by 2024, up from none in 2020.

The study findings indicated a positive correlation between the intention to utilise FP and the intervention. This study aligns with a study conducted in the pastoralist region of Afar, which indicated a favourable attitude towards contraceptive use (21). In contrast, a regional study out of sub-Saharan Africa indicated low intent to use contraception among women, despite health education, leading to low contraceptive prevalence and high rates of unintended pregnancies (22). This educational activity aimed to foster positive attitude transformation and behavioural modification by addressing misconceptions related to FP. This showed that community-based health education can change the way pastoralist communities think about and use family planning. This also helps with birth spacing, which is good for the health of mothers because it will stop unwanted pregnancies.

After the intervention, women's views on FP changed dramatically. The percentage of women who thought it was a good thing went from 25.8% to 33.2% ($p<0.01$). The results support the findings of a Ugandan study that indicated educational interventions positively changed attitudes toward family planning (23). Likewise, study (24) indicated that women who possess literacy skills are twice as likely to utilise contraceptives compared to their illiterate counterparts. Furthermore, results from a study conducted in Kajiado, Kenya, demonstrated that community education positively influenced attitudes towards the adoption of FP methods (25). CBHE played a crucial role in transforming negative attitudes and stigma associated with FP usage in pastoral regions. This strategy thus promotes a pastoral lifestyle and demonstrates an alteration in behaviour and attitude regarding contraception.

Study limitations and strengths

The investigation was confined to a pastoral society characterised by distinct customs, livelihoods, and remote location; consequently, the results might not apply to other contexts with differing cultural influences.

The quasi-experimental study design applied did not achieve 100% randomization, which is a gold standard for experimental studies. However, the respondents were randomly sampled to minimise bias. This study was done for six months, and hence, the long-term effect of the intervention was not assessed.

Conclusion

Community-based health education positively influenced contraceptive uptake in the pastoral settings; the study highlighted a shift in attitude and intention to use contraception in the

future. This demonstrates the effectiveness of targeted educational interventions in promoting behaviour change. The intervention site had a positive increase in awareness, knowledge, and acceptance of contraceptive methods. Qualitative data underscores the importance of the intervention in improving contraceptive knowledge, impacts the right attitude and reduces stigma.

Recommendations

The study recommends integrating culturally sensitive interventions into national and county policies to enhance FP adoption in pastoralist settings. The research recommends future research to examine the long-term effects of community-based health education on the use of contraceptives and its impact on mother and child health outcomes.

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Author contribution

- SLK: Conceptualised this study, carried out the analysis and drafted the manuscript.
- MK and AC: Revised and edited the manuscript. All the Authors have read and agreed to publish the version of this manuscript.

Author contacts

- Samuel Lopar Kipunaa

E-mail: loparsmmy@gmail.com

ORCID: https://orcid.org/0000-0003-2636-6660

- Mary Kipmerewo

Email: mkipmerewo@mmust.ac.ke

ORCID: https://orcid.org/0000-0003-1220-6439

- Alex Chebor

Email: achebor@mmust.ac.ke

ORCID: https://orcid.org/0009-0008-9811-6162

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