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"There is a light that our wives had not seen before": community perspectives on a gender-responsive maternal health intervention in Western Kenya

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Abstract

Background The *Chamas for Change* (*Chamas*) program is an innovative three-year community-based gender-responsive intervention in Western Kenya. During this period, the program provides peer support, microfinance initiatives, and health education to pregnant women. A randomized control trial demonstrated significant improvements in maternal and child health outcomes for program participants. This qualitative study explored community perceptions of the program.

Methods We conducted 9 focus group discussions and 4 key informant interviews between November 2017 and June 2019. Participants ($n = 75$) were recruited from four sub-counties in Trans Nzoia County representing diverse rural, peri-urban, and urban settings. They included 26 pregnant women (pre-intervention), 19 *Chamas* women, 10 spouses, 16 CHPs, and 4 county public health nurses (post-intervention). We used purposive sampling to ensure representation across all four sub-counties where the intervention was deployed. We recruited women aged 18–45 years who had experienced pregnancy within the previous two years from each sub-county in Trans Nzoia County, capturing experiences across rural, peri-urban, and urban settings. This sampling strategy ensured comprehensive geographic representation within the intervention catchment area to understand how pregnancy experiences and gender dynamics varied across different community contexts. CHP and local leaders in each sub-county facilitated recruitment. Pre-intervention FGDs explored pregnancy experiences, gender-related barriers to care, and social support needs. Post-intervention, we examined *Chamas* program components, implementation, cultural acceptability, and perceived effects across individual, interpersonal, and community levels using the socio-ecological model (SEM). Data were analyzed thematically with ATLAS.ti® version 23.4, organizing findings by SEM levels and participant type.

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Results Pre-intervention participants described deep-rooted gender inequities and structural barriers to care that shaped pregnancy experiences. Our analysis revealed four key themes: (1) The “heaviness” and isolation of pregnancy shaped by gender roles, (2) Building individual skills and knowledge for pregnant and parenting women and their children, (3) Enhancing interpersonal support and family dynamics, and (4) Community-wide effects and challenges of implementing a gender-responsive program. Participants reported increased self-reliance, health knowledge, and financial skills at the individual level. Interpersonally, the program fostered improved family dynamics, communication, and shifts in gender roles. At the community level, it enhanced social cohesion and collective action, gaining widespread acceptance due to its cultural relevance. The program’s microfinance component created participation barriers for the poorest women.

Conclusion The *Chamas* program’s integrated approach was viewed favorably across SEM levels showing benefits for individuals and communities. Results show benefits for individuals and communities. Multiple participant perspectives provided comprehensive understanding of the program’s effect. Future research should examine modified microfinance models to enhance accessibility for the poorest women and explore program application in similar settings.

Plain English Summary

Women in rural Kenya face isolation and challenges during pregnancy due to gender inequalities and limited healthcare access. The *Chamas for Change* program brings pregnant women together in groups that combine health promotion, financial savings, and peer support over three years. Researchers asked different community members - including pregnant women, their husbands, health workers, and program participants - to share their views about the program and its effects.

The program empowered women in several important ways. Women gained valuable knowledge about pregnancy and childcare, learned to manage money, and developed self-reliance. The program transformed family relationships - husbands and wives communicated better, and men took more active roles in pregnancy and childcare, shifting away from traditional gender roles. Women built stronger social connections in their communities and worked together to solve problems.

Community members welcomed the program and found it respected their cultural values. However, the requirement to contribute money to savings groups prevented the poorest women from participating. The researchers recommend future versions of the program should include these women and suggest testing similar programs in other communities that face similar challenges. This study demonstrates how combining health education, financial skills, and peer support helps address gender inequalities in maternal healthcare while respecting local culture. The *Chamas for Change* program shows how community-based approaches can improve maternal health outcomes and promote gender equity.

Keywords Pregnancy, Maternal health, Gender equity, Social determinants of health, Qualitative study, Community-based intervention, socio-ecological model

Background

Maternal mortality rates (MMR) remain a critical global health challenge, with significant disparities between and within countries. Globally, the MMR was 223 deaths per 100,000 live births in 2020, with regional disparities. Sub-Saharan Africa bears the highest burden with 545 deaths per 100,000 live births, while East Africa specifically reports 401 deaths per 100,000 live births [1]. Kenya’s MMR of 342 deaths per 100,000 live births in 2022 [2] while below the regional average, remains significantly above the global target. This translates into approximately 5,000 annual deaths due to pregnancy and childbirth complications, despite improvements in antenatal care attendance, skilled birth attendance, and health facility deliveries over the past decade [3–6]. These preventable deaths highlight the complex interplay of social,

economic, and cultural factors that shape maternal health outcomes [7, 8].

High maternal mortality rates reflect deep-rooted gender inequities that disproportionately affect poor and disadvantaged women, especially in rural communities [9–11]. While individual factors such as age and education influence healthcare-seeking behavior, broader social determinants play a critical role including family power dynamics, community support, healthcare accessibility, cultural norms, poverty, and entrenched gender roles [8, 12]. Addressing these gendered social determinants is essential for reducing preventable maternal morbidity and mortality and advancing gender equity [12, 13].

Community-based interventions that explicitly address social determinants have shown promise in improving maternal health outcomes [7, 13]. However, the evidence

has been mixed and context-dependent [13, 14]. A systematic review revealed variable effectiveness across different contexts and populations [14]. For example, some interventions led to measurable reductions in neonatal and maternal morbidity, while others showed minimal or no sustained impact, particularly where gender norms, health system weaknesses, or limited community engagement reduced effectiveness [15, 16]. These inconsistencies highlight the need to understand not just whether interventions work, but how and why they do or do not work in specific sociocultural settings.

While the literature increasingly recognizes the importance of gender as a social determinant of maternal health, including evidence on male involvement, decision-making autonomy, and women's empowerment [17–21], few interventions have used an explicit gender-responsive lens to understand mechanisms of effect and outcomes in maternal health through community perspectives. Our study addresses this gap by exploring how community members experience gender norms and power dynamics in the context of a locally embedded intervention.

The *Chamas for Change* (*Chamas*) program in Western Kenya represents an innovative intervention to address maternal health challenges through a gender-responsive, community-led approach. Trans-Nzoia County was selected as it exemplifies the maternal health challenges facing rural Kenya women, with indicators consistently below national averages. As of 2022, only 58% of women in Trans-Nzoia County received at least four antenatal care visits [22], compared to the national average of 67% [2]. Trans-Nzoia represents communities where innovative, culturally-responsive interventions are most needed to address structural barriers to maternal healthcare. While our previous research demonstrated that the *Chamas* program is associated with improved maternal health indicators and can be effectively integrated into a county's health strategy [5, 6], there remains a gap in understanding how this program is received and perceived within the community context and its potential effects on gender dynamics.

Our qualitative study explores the perspectives of *Chamas* participants, their spouses, community health promoters (CHPs), and key informants (sub-county public health nurses) in Trans-Nzoia County, Kenya. We use the socio-ecological model (SEM) as a framework to examine the effects at individual, interpersonal, and community levels, with a focus on gender dynamics [23]. The SEM provides a comprehensive framework for understanding how personal and environmental factors interact to influence health behaviors and outcomes. Qualitative research is particularly valuable for understanding mechanisms of effect and nuances in program impact across different individuals, especially for

examining gender dynamics that are challenging to capture quantitatively. This qualitative study aims to explore community perspectives on the *Chamas* program implementation, cultural acceptability, and perceived effects on maternal health and gender dynamics across individual, interpersonal, and community levels using the socio-ecological model framework. The findings from this research have the potential to inform more effective, equitable, and contextually appropriate approaches to maternal health interventions in Kenya and similar settings worldwide.

Methods

The *chamas* for change program

The *Chamas* program was launched in 2012, by the Academic Model Providing Access to Healthcare (AMPATH) in collaboration with the Kenyan Ministry of Health, Moi University, and Moi Teaching and Referral Hospital [4, 5]. *Chamas* leverages a traditional East African cultural model to create support networks for women [4] through mother-child investment clubs, providing health promotion, skill-building, social support, and gender equity promotion, while providing vital linkages to a health facility through CHPs.

Cohorts of 15–20 pregnant women at similar gestational ages meet twice monthly for 60–90-minute sessions, guided by two CHP facilitators and two mentor mothers (peri-menopausal women). CHPs undergo intensive training on maternal-child health topics, group facilitation, and data collection methods. They collect attendance data, track health outcomes, and document group savings activities at each session. The sessions cover antenatal, postpartum, and early childhood health topics, as well as social topics that implicitly address gender equity. These include communication skills training, shared decision-making in families, conflict resolution strategies, discussions about household responsibilities, evolving family roles, collaborative planning for pregnancy and childcare, shared parenting approaches, and strategies for engaging male partners in maternal and child health activities. Women's economic independence is supported through the GISHE component. The *Chamas* curriculum is designed to equip women with new skills through health promotion and economic opportunities while addressing gender inequities [5, 6].

The program includes a microfinance component, Group Integrated Savings for Health and Empowerment (GISHE), an optional table-banking program that promotes financial independence and decision-making power. Women unable to contribute financially can participate as non-financial members to build their financial literacy skills. Women are encouraged to invest in early childhood education, purchase health insurance, and/or start small businesses with GISHE savings. Members are

mentored to be able to perform their own bookkeeping of their savings and loans. The study provided no incentives except travel reimbursement and mobile charges for CHPs during recruitment.

Study setting

We conducted this research in Trans-Nzoia County in Western Kenya, a predominantly rural setting with a population of about one million people. We implemented the *Chamas* program in four of the county's five sub-counties: Cherangany, Kwanza, Kiminini, and Saboti, covering 37 of the 163 community units in these areas. These sub-counties were selected to represent diverse rural, peri-urban, and urban settings.

Study design and participants

We employed an exploratory qualitative study design, conducting focus group discussions (FGDs) and key informant interviews (KIIs) between November 2017 and June 2019. Our study included two phases: a pre-intervention phase (November 2017) to assess the specific context and inform adaptation of the *Chamas* program for Trans-Nzoia County, and a post-intervention phase (June 2019) to evaluate the program's implementation and effects.

The pre-intervention phase included four FGDs with pregnant women. The post-intervention comprised five FGDs (two with *Chamas* members, one with their spouses, and two with CHPs) and four KIIs with public health nurses. County public health nurses served as key informants because they oversee maternal health services, implement programs at the facility level, and provide unique insights on how *Chamas* integrated with existing health systems. The participants in the pre- and

post-intervention phases were separate groups, with no overlap between them. This design allowed us to capture both pre-intervention perspectives and post-intervention experiences.

Our study included 75 participants. Pre-intervention recruitment used multiple pathways to ensure diverse representation: antenatal clinic attendees were approached during routine visits, CHPs referred pregnant women from their community networks, and community leaders nominated women who might not access formal healthcare. This approach helped us reach women accessing formal healthcare and those who weren't. Eligibility criteria for pregnant women included being pregnant (at any gestational age) and residing in participating communities. For post-intervention groups: *Chamas* members were required to have completed at least 12 months of program participation; spouses were partners of *Chamas* participants willing to discuss their experiences; CHPs were trained program facilitators with at least 6 months of experience; and key informants were county public health nurses overseeing maternal health services in the study area. Post-intervention, CHPs systematically invited *Chamas* members representing different socioeconomic backgrounds, program completion rates, and geographic locations. Spouses were recruited through *Chamas* members, ensuring voluntary participation and diverse perspectives on program impact.

Data collection procedures

We developed semi-structured discussion guides for both FGDs and KIIs, with open-ended questions. While our interview guides did not include direct questions about gender roles due to cultural sensitivities, the *Chamas* curriculum sessions on family communication, shared decision-making, and collaborative parenting are interpreted and discussed by participants as relating to gender equity. This approach created space for organic discussions about changing traditional gender roles without explicitly challenging cultural norms. The pre-intervention FGDs explored perceived maternity health needs, preferences and barriers. The post-intervention guides focused on four domains of interest: perceptions of the *Chamas* components, implementation experiences, cultural acceptability, and perceived effects. We used identical question sets in each FGD to compare the different group perspectives. Table 1 provides sample questions from the pre- and post-intervention guides.

We chose FGDs to capture a broad spectrum of opinions and perceptions and conducted individual KIIs with public health nurses to accommodate their schedules. All FGDs and KIIs were conducted in private locations chosen by participants to ensure confidentiality, including community halls, health facility meeting rooms, or private homes. Sessions lasted 60–90 min, and were

Table 1 Sample questions from interview guides

Phase	Sample Questions
Pre-intervention	• When would you advise someone to go for their first ANC clinic? Explain women's preference on location. • Why do some choose the hospital? Why do others opt for the traditional birth attendant (TBA)? • Describe any special support groups in your community for when women are pregnant, breastfeeding, or have small children.
Post-intervention	• Tell me about your experiences participating in <i>Chamas</i>. • How have you applied what you learned in <i>Chamas</i> to your daily lives? • How has your peer support network changed during your participation in <i>Chamas</i>? • Have any of these lessons changed the way in which you care for yourself/your baby? • Do you think women would still be interested in attending <i>Chamas</i> if there was no GISHE component? Why or why not?

audio-recorded with participant consent. We used experienced local facilitators fluent in English and Swahili to conduct the sessions in the participants' preferred language. Field notes were taken to capture non-verbal cues and contextual information. All participants filled out a brief questionnaire to collect socio-demographic information including age, gender, marital status, education level, and occupation. All recordings were transcribed verbatim by trained local research assistants fluent in both English and Swahili. For interviews conducted in Swahili, transcripts were translated to English by bilingual team members, with back-translation verification performed by independent translators to ensure accuracy and cultural appropriateness of concepts and meanings.

Ethics

We obtained ethical approval from the Institutional Research and Ethics Committee at Moi University School of Medicine and Moi Teaching and Referral Hospital (IREC/2013/76), the Office of Research Administration at Indiana University (#1306011628), and the Research Ethics Board at the University of Toronto (# 2907). The study was also approved by Trans-Nzoia County leadership and community leaders. Written informed consent was obtained from all participants. To protect confidentiality, we limited the number of investigators with access to audio recordings, de-identified subjects on transcripts, and stored recordings and subject keys in encrypted, password-protected computer files. For this report, we followed the standards for reporting qualitative research (SRQR) guidelines [24].

Data analysis

Our analysis process followed an inductive thematic approach based on Braun and Clarke's six-step method [25]. An experienced qualitative researcher (NV) provided training to the research team in qualitative data analysis, including coding and thematic analysis, to ensure consistency in our analytical approach. All audio recordings were transcribed verbatim and translated to English where necessary. Four investigators (AA, JA, IJ, CS) independently immersed themselves in the data, reading and re-reading the transcripts to gain a comprehensive understanding.

Using ATLAS.Ti® version 23.4 software, we conducted coding sequentially, starting with pre-intervention FGDs, followed by post-intervention FGDs, and finally the KIIs. Each investigator independently identified emerging inductive codes, which were added to a shared codebook. Initial coding generated over 200 codes, later refined through team discussions. We paid particular attention to how participants' responses reflected gender dynamics, even when not explicitly discussed allowing

gender-related themes to emerged naturally from the participants' perspectives.

We clustered related codes into concepts and merged these into overarching themes aligned with the four key domains of interest focusing on program reception and effects on gender dynamics and women's empowerment. We then mapped these themes onto the levels of the SEM (individual, interpersonal, and community) to provide a comprehensive understanding of the *Chamas* program's effect across ecological levels [23].

To ensure rigor, we implemented several strategies. Our research team held regular debriefing sessions to discuss emerging codes and themes, resolve discrepancies, and reach consensus. We engaged with the *Chamas* Community Advisory Board (CAB) throughout the analysis process. The CAB comprising local community leaders, former *Chamas* participants, healthcare providers, and gender equity advocates met quarterly to review preliminary findings, challenge our interpretations, and provide cultural context for emerging themes.

Data triangulation used different sources (FGDs and KIIs) and participant groups (women, spouses, CHPs, and key informants). The CAB's involvement from initial code development through final theme refinement strengthened our interpretation and enhanced the credibility of our findings. Their feedback was particularly crucial in understanding pregnancy experiences, gender dynamics, cultural acceptability and program impacts. We conducted member checking by presenting preliminary findings to the CAB for validation. We determined data saturation when no new codes or themes emerged from additional transcripts, which occurred after analyzing approximately 80% of the data. In our results section, we have organized our findings by SEM levels, highlighting how different participant groups perceived the *Chamas* program's influence on maternal health and gender dynamics.

Results

The socio-demographic information of participants is summarized in Table 2. The study participants' ages varied, with pregnant women in pre-intervention FGDs having a mean age of 25 years, while CHPs had a mean age of 50 years. Pregnant women's occupations also varied, with a high proportion of homemakers and self-employed individuals, while their spouses were primarily self-employed. Education levels ranged from primary to secondary, with CHPs having the largest percentage of secondary or post-primary education (94%). Four sub-county public health nurses, mostly women (75%), were interviewed as key informants. Participants were distributed across rural (48%), peri-urban (25%), and urban (27%) settings within Trans Nzoia County.

Table 2 Demographics of FGD and KII participants

	Pre-intervention non-Chamas women FGD participants (N=26)	Post-intervention FGD with Chamas members (N=19)	Post-intervention male spouses (N=10)	Post-intervention FGDs with CHPs (N=16)	Key Informant interviews (N=4)
Number of FGDs	4	2	1	2	4
Number of participants	26	19	10	16	4
Mean age (SD)	25.13 (5.49)	29.00 (6.34)	41.90 (11.39)	50.13 (9.65)	52.75 (8.85)
Gender					
Female	26	19	0	11	3
Male	0	0	10	5	1
Marital Status					
Married	24 (92.31%)	17 (89.5%)	10 (100.0%)	16 (100.0%)	4 (100.0%)
Single	2 (7.69%)	2 (10.5%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Education level					
Primary	12 (46.2%)	2 (10.5%)	5 (50.0%)	1 (6.3%)	0 (0.0%)
Secondary or post-primary	10 (38.5%)	8 (42.1%)	4 (40.0%)	15 (93.7%)	4 (100.0%)
Vocational or tertiary	3 (11.5%)	9 (47.4%)	1 (10.0%)	0 (0.0%)	0 (0.0%)
Missing	1 (3.8%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Occupation					
Employed	3 (11.5%)	2 (10.5%)	1 (10.0%)	0 (0.0%)	4 (100.0%)
Self-employed	7 (26.9%)	6 (31.6%)	8 (80.0%)	0 (0.0%)	0 (0.0%)
Farmer	5 (19.2%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Homemaker	9 (34.6%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Unemployed	0 (0.00%)	11 (57.9%)	1 (10.0%)	0 (0.0%)	0 (0.0%)
Student	1 (3.9%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Missing	1 (3.9%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Participated in GISHE					
Yes	-	13 (68.4%)	-	-	-
No	-	6 (31.6%)	-	-	-
Based at the facility					
Yes	-	-	-	3 (18.8%)	0 (0.0%)
No	-	-	-	13 (81.3%)	0 (0.0%)
Mean years of service (SD)	-	-	-	13.38 (5.74)	13.38 (11.67)

Our analysis of the perspectives and experiences shared by various community members regarding the *Chamas for Change* program revealed four main themes. These themes provide a comprehensive understanding of the program's influence across different ecological levels: (1) The “heaviness” and isolation of pregnancy is shaped by gender roles (individual, interpersonal, and community levels), (2) Building individual skills can be lifesaving for pregnant and parenting women and their children (individual level), (3) Enhancing interpersonal support and transforming gender dynamics in family decision-making (interpersonal level) and (4) Implementing a gender-responsive program yields community-wide effects and challenges (community level). Figure 1 shows how the four main themes relate to the socio-ecological model framework. Theme 1 (black box) affects all three SEM levels, demonstrating how pre-intervention challenges impacted women at the individual, interpersonal, and community levels. Themes 2–4 align with their

corresponding SEM levels, showing program outcomes at each level. Program mechanisms including communication skills, conflict resolution, and economic activities facilitate transitions between themes. Arrows show the connections between each SEM level and its associated theme.

Theme 1: the heaviness and isolation of pregnancy is shaped by gender roles

Pregnant women across rural, peri-urban, and urban settings in Western Kenya face challenges where deeply entrenched gender roles affect their well-being across multiple SEM levels. Participants frequently described pregnancy as ‘heavy’ (referring to both physical and emotional burdens) and isolating, reflecting how gender roles intensified their vulnerabilities during this period. Pre-intervention data provided crucial insights into the program's potential reception and cultural acceptability within the community. This theme includes three

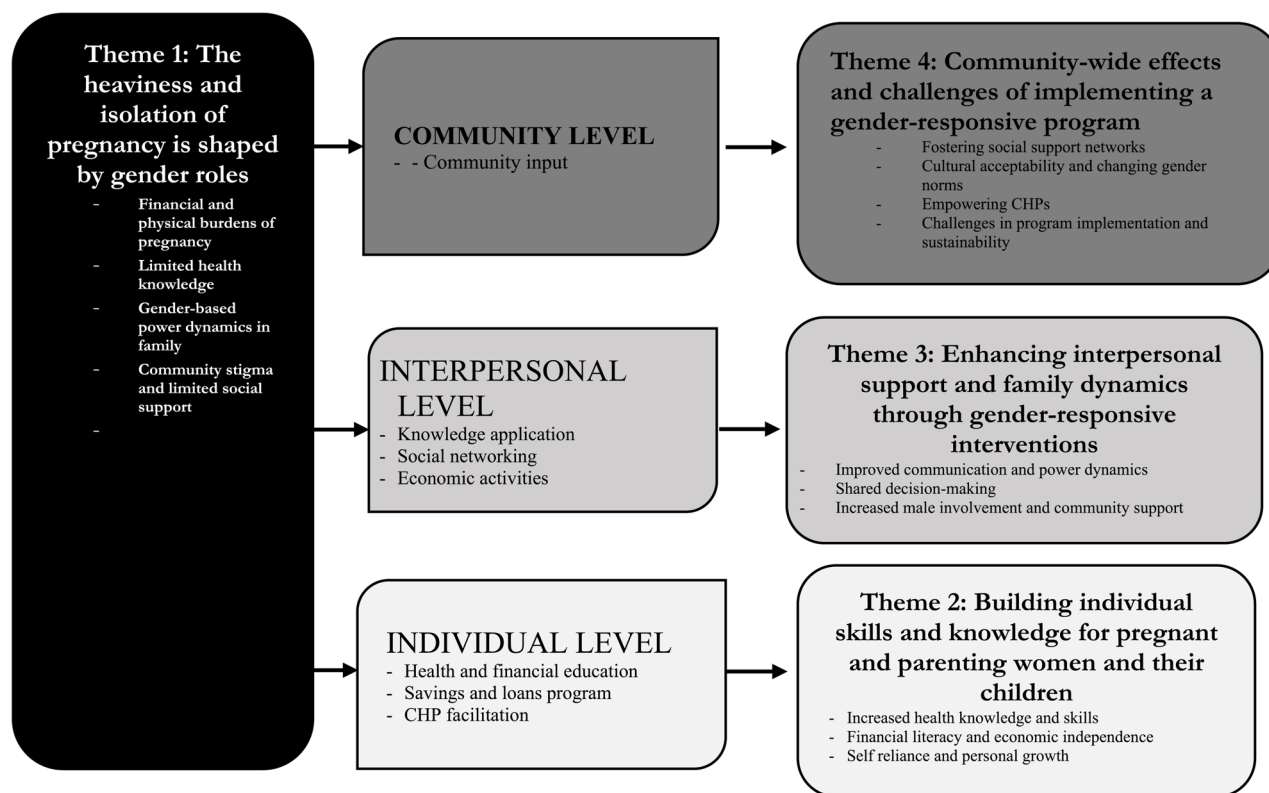


Fig. 1 Perspectives of a gender-responsive intervention for maternal and child health: a socio-ecological model [23]

subthemes, each corresponding to a SEM level: financial and physical burdens of pregnancy (individual level), gender-based power dynamics in the family (interpersonal level), and community stigma and lack of support (community level).

Individual level - financial and physical burdens of pregnancy

Women described how internalized gender norms about women's roles created feelings of helplessness and dependence during pregnancy. They accepted financial hardship as 'women's burden' and felt personally responsible for managing pregnancy challenges alone, showing how gender norms shaped their individual coping strategies during this vulnerable period. Women reported feeling overwhelmed by the financial and physical burdens of pregnancy, often exacerbated by gender norms that limited their economic independence: "When you are pregnant you undergo a lot of suffering. Maybe you are sickly, you are not even able to work. You don't have money to buy food or fruits." (FGD, Pre-intervention, Pregnant woman). These internalized expectations created personal guilt when they couldn't meet health recommendations: "Saving some amounts to help you during pregnancy and after delivery. Mostly you are required to eat well but you find that you don't have money." (FGD, Pre-intervention, Pregnant woman). Women also internalized expectations about dependency, viewing their loss of economic

independence as natural: "I used to be a businesswoman but after I got pregnant I could not continue with my business. So now I depend on my husband for everything." (FGD, Pre-intervention, Pregnant woman).

Interpersonal level - gender-based power dynamics in the family

Women described experiences of neglect, insecurity, and unequal distribution of household responsibilities: "Some husbands work away from home.... Maybe wherever he is he has another woman. So, there is no way he would remember to take care of me. I must work for me to get money for upkeep." (FGD, Pre-intervention, Pregnant woman). Gender-based violence was a concern for some: "Sometimes it's due to lack of peace at home. When the husband is a drunkard and there's domestic violence, that can affect the pregnancy." (FGD, Pre-intervention, Pregnant woman). Traditional gender roles created additional burdens during pregnancy, as women were still expected to maintain their domestic responsibilities despite their condition: "When one is pregnant, they are not supposed to be stressed.... Sometimes, you feel unwell, but they still force you to do chores like going to the farm, taking care of the animals, going to fetch water and at that time you are weak and not able to." (FGD, Pre-intervention, Pregnant woman).

Community level - community stigma and lack of support

Women reported that economic status and marital status affected community support: *"It's because sometimes in the village we are treated according to your status, so if you are poor it's difficult to get help."* (FGD, Pre-intervention, Pregnant woman). Gender norms intersected with marital status to create additional stigma, especially for unmarried ones: *"There are many challenges associated with being pregnant, especially if you are still living with your parents. You can be banned from attending church. When you are a pregnant girl and unwed, your parents can sideline you."* (FGD, Pre-intervention, Pregnant woman).

Theme 2: building individual skills can be life-saving for pregnant and parenting women and their children

This theme demonstrates how *Chamas* built women's skills and knowledge at the individual level of the SEM. Participants' perspectives revealed *Chamas* effects on health knowledge, financial management, and personal growth. The theme comprises three subthemes: enhancing health knowledge and skills, building financial literacy and economic independence, and effect on self-reliance and personal growth.

Enhancing health knowledge and skills

The program's health promotion component directly addressed knowledge gaps identified in the pre-intervention phase. *Chamas* members reported significant improvements in their health knowledge: *"Through Chama cha mama toto I have some knowledge on first aid in case of an issue at home. I can attend to it before rushing to hospital."* (FGD, Post-intervention, *Chamas* member). Women learned about preventive care: *"I have learnt that when I am pregnant and visit clinic, they help you prevent some diseases by vaccinating you."* (FGD, Post-intervention, *Chamas* member) and *"I have learnt that going for ANC clinic early helps you get tested for HIV virus, if you are found positive you are given some drugs to help you prevent infecting the fetus."* (FGD, Post-intervention, *Chamas* member). Another participant described the range of skills she had acquired: *"I have learnt to save, grow vegetables, rear healthy chickens...I have learnt many things from this group."* (FGD, Post-intervention, *Chamas* member). They also reported improved child-care practices: *"I have learnt on the importance of exclusive breastfeeding, before I used to introduce my child to herbs and porridge at an early age."* (FGD, Post-intervention, *Chamas* member).

Building financial literacy and economic independence

The GISHE component of *Chamas* addressed financial dependence, a key gender-based barrier: *"As for me, what I enjoyed most in the Chamas is the GISHE program."*

(FGD, Post-intervention, *Chamas* member). CHPs observed improvements in women's financial management skills: *"They have learnt about budgeting and they no [longer] waste money on unnecessary things"* (FGD, Post-intervention, CHP) and *"I am happy because the women have started businesses and have saved money in Chamas. They borrow money and repay and this has really helped them."* (FGD, Post-intervention, CHP).

Effect on self-reliance and personal growth

This subtheme shows how the program's integrated approach to health promotion and financial empowerment catalyzed broader changes among *Chamas* members increasing their self-reliance, agency, and confidence. This approach resulted in women taking concrete actions to improve family well-being, such as enrolling in LindaMama (national health insurance) and registering children for preschool programs.

Women reported significant improvements in their economic independence: *"Chamas has really helped me, before I used to depend purely on my husband but now women are not dormant."* (FGD, Post-intervention, *Chamas* member). The word "dormant" shows how participants viewed themselves as having capabilities that were temporarily inactive but were awakened through the intervention. Another shared: *"Nowadays I am focused.... My mind keeps thinking if I plant vegetables, I know where I will get money. So, I don't keep asking for money from my husband."* (FGD, Post-intervention, *Chamas* member). Another woman added: *"This chama has been of help. It makes us women not be dormant.... It has open[ed] our minds."* (FGD, Post-intervention, *Chamas* member). The program fostered personal growth and hope among participants. As one woman expressed: *"I am happy because of the development of the Chama cha mama toto that has given me hope..."* (FGD, Post-intervention, *Chamas* member).

Spouses also noticed significant changes in their wives: *"When my wife joined Chamas, she understood more things to do with cleanness at home. I have seen my wife improving."* (FGD, Post-intervention, *Chamas* spouse). Another spouse noted broader benefits: *"We have come to see that there are benefits or there is a light that our wives had not seen before. There are more benefits in the Chamas apart from merry go round [an informal cooperative savings scheme], Chamas is challenging them in their lives"* (FGD, Post-intervention, *Chamas* spouse). Conflict resolution within families also improved: *"If I compare, conflicts in my family [have] reduced. And most of the time if you find couples having conflicts, you might find that most of them are not members of the chama cha mamatoto."* (FGD, Post-intervention, *Chamas* spouse).

Theme 3: enhancing interpersonal support and transforming gender dynamics in family decision-making

This theme demonstrates how the program's gender-responsive components influenced household dynamics. It aligns with the interpersonal level of the SEM and comprises three subthemes: improved communication and power dynamics, shared decision-making in health and finances, and increased male involvement in maternal and child health.

Improved communication and power dynamics

The program's curriculum addressed communication and power dynamics within families through structured sessions on family communication skills, conflict resolution techniques, and facilitated discussions about shared decision-making in households. Spouses of *Chamas* members reported positive changes: *"It has brought us closer. Whatever my wife says I always listen to them. We are always in agreement unlike before."* (FGD, Post-intervention, *Chamas* spouse). Another partner confirmed this view: *"I see that everyone listens to the other and decisions are also made together as a family. If I compare before and now, there is a big difference."* (FGD, Post-intervention, *Chamas* spouse).

The program's impact extended to broader family power dynamics. One CHP reported that: *"Some women had a bad relationship with their mother-in-laws, but right now they have a good relationship."* (FGD, Post-intervention, CHP). This improvement was attributed to the program's sessions on communication skills and conflict resolution. *Chamas* members noted improved skills in navigating family dynamics: *"It has taught us on how to stay with others back at home and how you can live with your husband or with your mother-in-law and the neighbors."* (FGD, Post-intervention, *Chamas* member). There were also reports of improved parenting practices: *"Before I join[ed] chama I was so harsh on them [children], whenever they do something wrong, I used [to] raise my voice on them but now they even say that I have changed because we can have a talk with them"* (FGD, Post-intervention, *Chamas* member).

Shared decision-making in health and finances

The integration of financial literacy training with discussions about gender equity led to changes in household decision-making processes. Male partners noted shifts: *"Before, I used to make decision by myself. But after they got the training from the chama, my wife and I make the decisions."* (FGD, Post-intervention, *Chamas* spouse). The GISHE component shifted financial power dynamics: *"My wife never used to know how to plan on things that involved money but after she received training on how to plan for the money. Even at the moment she helped me with some money that I used to plough our farm."* (FGD,

Post-intervention, *Chamas* spouse). As highlighted by a CHP: *"GISHE has been of great importance since the women do save the little they have and use it to take children to the hospital."* (FGD, Post-intervention, CHP).

Increased male involvement in maternal and child health

The program equipped women with strategies to engage their spouses through communication skills training and discussions about shared parenting responsibilities. This fostered a significant shift in men's attitudes and behaviors towards childcare responsibilities: *"I never had an understanding that the responsibilities of a child were part of me. But after my wife joined Chama cha mamatoto that [is] when I came to realize that as a father, I also needed to be on the other side so that our child could be in the middle of us. Raising up a child was the responsibility of both parents so that the child benefits from both parents."* (FGD, Post-intervention, *Chamas* spouse).

The program's emphasis on shared parenting responsibility led to concrete changes in household dynamics: *"It has brought good relationships and love in the family and right now you find both the parents are caring for the child. It's not like before where you could find the wife struggling alone. But right now, we are all responsible for feeding and caring for the child."* (FGD, Post-intervention, *Chamas* spouse). Men also reported increased engagement in hands-on childcare tasks: *"I can see that it has brought more happiness in my home. Because it wasn't easy for me before to even hold on the baby but right now when my wife is outside doing the chores, I help in feeding the baby."* (FGD, Post-intervention, *Chamas* spouse). Another father shared *"Chama cha mamatoto has taught me a lot of things. I never used to stay around with my family and play with them. But nowadays I play around with them.... And nowadays when I reach home, my children runs to hug me. All of them wants to stay with dad."* (FGD, Post-intervention, *Chamas* spouse).

Theme 4: implementing a gender-responsive program yields community-wide effects and challenges

This theme addresses the broader community effects, and the implementation challenges of the *Chamas* program at the community level of SEM. It comprises four subthemes: fostering social support networks, cultural acceptability and changing gender norms, empowering community health promoters (CHPs), and challenges in program implementation and sustainability.

Fostering social support networks

This program addressed the isolation during pregnancy and early motherhood. Participants reported increased community bonds and mutual support: *"Chamas group has really helped us in terms of creating good relationships in the society. There are a lot of things that we have*

helped each other with, for example, if a member has an issue, we always go there as a group to support her." (FGD, Post-intervention, *Chamas* member). This support extended to practical assistance during the postpartum period: "After delivery ... people will come to help you with household chores so that you can relax and feel well." (FGD, Post-intervention, *Chamas* member). Community acceptance was evident: "We are doing great in our chama despite being so reluctant when we started, ... my husband too is happy and supports me with chama." (FGD, Post-intervention, *Chamas* member).

Cultural acceptability and changing gender norms

The program's success was attributed to alignment with existing cultural practices. A key informant noted: "[The practice of] *Chamas* is something that has been with us for a very long time. Many of us women in Kenya, it doesn't matter your level of education, embrace *Chamas*." (KII, Post-intervention). A CHP also reported support from community leaders: "I am also grateful that there is a time when we are in our meeting and the sub-chief was invited, he was very impressed with what we are doing." (FGD, Post-intervention, CHP).

Empowering community health promoters (CHPs)

The CHPs played a crucial role in building community trust: "My CHPs have been good teachers, whenever we have an issue, they follow up and they are open and we are together." (FGD, Post-intervention, *Chamas* member). Participants frequently praised the CHPs for their dedication and effectiveness: "My CHPs are so helpful they are the reason why we are faring well with our *Chamas*" (FGD, Post-intervention, *Chamas* member). The program enhanced the CHPs' influence within the community: "It has also changed because I give them some advice on the importance of early ANC and to take their children for all the immunization" (FGD, Post-intervention, CHP). The CHPs reported on implementation successes: "In the beginning, it was very difficult, but when we were given GISHE boxes, women became interested, and right now they have embraced the program." (FGD, Post-intervention, CHP).

Challenges in program implementation and sustainability

The *Chamas* program has faced several challenges, despite its success, particularly in implementing the microfinance component and ensuring sustained participation. Gender norms restricted some women's participation: "There are those who refuse to join [*Chamas*] because they say they have a lot of work to do, ... Then she asked, what will happen if my husband doesn't find me at home?" (FGD, Post-intervention, *Chamas* member).

Financial barriers created challenges for the poorer women, potentially excluding those who might benefit most from the program. Some *Chamas* members expressed concerns about the financial returns from the microfinance component: "One can save and when it's time to withdraw, she finds less money. That person will leave saying this hasn't made me happy." (FGD, Post-intervention, *Chamas* member). According to one CHP, others found the interest rates less competitive than traditional banking options: "To add on the side of GISHE, our own ended because for sure it doesn't make any economic sense lending money to someone at 10% interest and yet the bank gives 14% [savings interest]." (FGD, Post-intervention, CHP). A key informant explained: "There are mothers who are unable to contribute... there is that aspect of poverty and this affects the other four [that do not join GISHE], which makes them feel left out." (KII, Post-intervention). Nonetheless, many participants expressed strong support for program continuation: "I wanted to request that the program should give us more time and continue being with us. They shouldn't reach a point where they drop us out of the program. I want them to go with us until we [the community] see their importance." (FGD, Post-intervention, *Chamas* spouse).

***Chamas* program effects across socio-ecological model levels**

Figure 1 illustrates the four main themes of our study within the context of the SEM. The concentric circles represent the individual, interpersonal, and community levels of influence, demonstrating how the *Chamas* program's effects span the SEM levels. The four interconnected boxes represent our key themes progressing from pre-intervention challenges through program implementation to outcomes. The white boxes between themes illustrate the mechanisms of change, such as health education, microfinance (GISHE), CHP facilitation, knowledge application, social networking, and economic activities. Arrows connecting the themes indicate the progression of change, while showing the iterative nature of the program's effects through community input.

This visual representation captures the complex interplay between the program's components, its implementation, and its effects across SEM levels. It illustrates how *Chamas* addresses multi-level barriers to maternal health and promotes positive change at individual, family, and community levels, while acknowledging implementation challenges and areas for future development. The figure emphasizes that while the initial challenges (Theme 1) span all SEM levels (represented by the black box), the program's components and outcomes (Themes 2–4) have specific focuses at the individual, interpersonal, and community levels respectively.

Discussion

Our qualitative findings reveal how a community-based and gender-responsive maternal health program (*Chamas*) in Western Kenya affected maternal health outcomes and gender dynamics across multiple SEM levels [23]. Our analysis of participant narratives reveals the program's diverse effects, from shaping individual health behaviors to transforming community norms regarding gender and maternal care. Our findings remain relevant to current global maternal health priorities. The structural gender inequities we identified persist across sub-Saharan Africa and were intensified during COVID-19 [26, 27]. The research team recently completed an evaluation of the *Chamas* program's impact on maternal and child health outcomes during the pandemic, and they are currently preparing manuscripts. This early *Chamas* implementation offers critical lessons for designing integrated maternal health programs.

We identified deep-rooted gender inequities that disproportionately impact poor and disadvantaged women, confirming previous research findings [8, 12, 13]. Pre-intervention data highlighted significant challenges, including financial dependence, gender-based violence, and lack of support during pregnancy. These findings align with research on pregnant women vulnerabilities in low-resource settings [28–30]. Our study revealed how pregnancy was perceived as a highly isolated and vulnerable period, with structural barriers significantly affecting maternal health in rural Kenya.

Participants described potential shifts in aspects of gender roles within households and communities. Men reported taking on more childcare responsibilities and unpaid work at home, traditionally women's roles. This suggests a shift towards gender equity and highlights the importance of sharing household responsibilities to improve maternal and child health [31, 32]. However, the sustainability and broader transformation of entrenched gender norms demand longer-term evaluation. While the intervention operates primarily as a gender-responsive program, these findings suggest the potential to evolve into a gender-transformative approach through more explicit discussions about gender roles and power dynamics.

Our study builds on growing evidence supporting community-based, group care models that address social determinants of health [14, 33]. The *Chamas* program distinguishes itself through comprehensive integration of health promotion, skills building, microfinance components, and social support, addressing a broader spectrum of social determinants than many existing models. This multifaceted approach was well-received by participants, who reported increased self-reliance, confidence, and practical skills in health and financial management at the individual level. This aligns with research showing

that women with enhanced autonomy are more likely to seek healthcare and make informed health decisions [17, 19, 28, 34]. At the interpersonal level, participants described the intervention fostered strong support networks and improved family dynamics. At the community level, the intervention gained widespread acceptance through its cultural relevance. This aligns with growing evidence supporting multisectoral approaches to improving maternal and child health outcomes [35, 36].

Community-based maternal health interventions show varying effectiveness depending on context. While systematic reviews demonstrate that these interventions can improve maternal health knowledge and behaviors, effects on actual health outcomes vary significantly [13, 14]. Studies of integrated microfinance and health interventions similarly reveal mixed results some show promising effects on health knowledge and behaviors but inconsistent effects on health outcomes [37]. Research has also identified challenges in sustaining male involvement and overcoming deeply entrenched gender norms [38, 39]. These mixed findings highlight the complexity of implementing interventions like *Chamas* and the importance of understanding community perspectives on program mechanisms.

We identified a critical challenge regarding the potential exclusion of the poorest women from the microfinance component due to financial barriers, particularly those whose partners restricted their participation in community activities. While the program shows potential to gradually shift broader gender perceptions, reaching these most vulnerable women poses a significant challenge that demanding modified approaches to ensure equity.

Our study has several limitations. Social desirability bias likely influenced participants to report more positive changes in gender dynamics and family relationships than what occurred. Our cross-sectional qualitative design enabled us to capture diverse perspectives without potential response fatigue but limited our ability to track changes over time or evaluate sustainability. We missed capturing perspectives from women who dropped out or chose not to participate, potentially overlooking important insights about barriers to engagement.

Future research should explore long-term effects of community-based gender-responsive programs using both quantitative measures of health outcomes and longitudinal qualitative studies to track the evolution of gender dynamics and women's empowerment over time. Exploring how these models can adapt and scale to different contexts will inform global maternal health strategies and examine modified microfinance approaches to improve accessibility for the poorest women.

Conclusion

Community-based and gender-responsive approaches shows promise as comprehensive, culturally relevant strategies for improving maternal and child health outcomes in Trans Nzoia County Kenya. Our study demonstrates that such interventions can be well-received by community members and show potential for addressing structural barriers and contributing to shifts in gender dynamics. However we need longer-term evaluations to assess the sustainability and broader impact of these changes. These approaches contribute not only to improved maternal health outcomes, but also to our broader understanding of how to create more equitable health systems from the perspective of the communities they serve.

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Authors' contributions

AC-D, LR, and JS conceptualized, sought, and obtained funding for this study. LM and MS drafted the study protocol, developed data collection tools and oversaw all data management processes led by AK. AJ, JL, and SC oversaw all research activities and coordinated research staff throughout the trial. AA, AJ, JL, and SC developed the codes and identification of themes, with critical feedback provided by all coauthors. All authors assisted in interpreting results. AA and NV authored the first draft of this article, SM and JB conducted a critical review of the manuscript and provided substantial input for the final refinement of the article. All authors contributed to reviewing and editing the final draft of this article for intellectual content. All authors approved submission of this manuscript for publication.

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Data availability

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

Declarations

Ethics approval and consent to participate

We received ethics approvals from the Institutional Research Ethics Committee at Moi University and Moi Teaching and Referral Hospital (IREC/2018/269) and Institutional Review Board at Indiana University (1905296355).

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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