

A Qualitative Evaluation of the Mentor Mother Program for HIV-Positive Pregnant and Lactating Women in Gaza Province, Mozambique



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List of Acronyms

ANC	Antenatal care
ART	Antiretroviral therapy
CRC	Child-at-risk consultation
EGPAF	Elizabeth Glaser Pediatric AIDS Foundation
EA	Evaluation assistant
FGD	Focus group discussion
HCW	Health care worker
HF	Health facility
HIV	Human immunodeficiency virus
IDI	In-depth interview
MCH	Maternal and child health
MM	Mentor mother
MMP	Mentor mother program
MOH	Ministry of Health
PMTCT	Prevention of mother-to-child transmission
PI	Principal investigator
PLHIV	People living with HIV
SC	Study coordinator
SD	Standard deviation
SOP	Standard operating procedure

EXECUTIVE SUMMARY

In response to challenges with HIV-positive pregnant and breastfeeding women remaining in care and treatment, the Mentor Mother Program (MMP) was launched in 2016. The program is modeled after South Africa's Mother to Mother (M2M) program, where HIV-positive women provide support and mentoring to other HIV-positive pregnant women by visiting them in their homes and attending facility appointments with them. The following evaluation was conducted to understand the acceptability and feasibility of the program in Mozambique from both the patient and provider perspectives. In-depth interviews and focus group discussions (FGDs) were conducted with HIV-positive women receiving care in the MMP, HIV-positive women who declined to receive care in the MMP, mentor mothers (MMs) supporting the HIV-positive women, health care workers (HCWs), mentor mother supervisors, MM program managers, MM program coordinators and MM program focal points.

The study results identified many program successes. Respondents indicated that MMs provided key information related to HIV and treatment that women were lacking. Mentor Mothers helped women to accept their HIV status and supported disclosure efforts. In general, HIV-positive women reported feeling less alone, less isolated and more in control of their health after enrolling in the MMP. Health care workers reported strongly valuing the support the MMs provided, especially in terms of their success at supporting defaulters in reintegration into care at the facility level.

One of the main challenges was insufficient information about the content of home visits provided to both HIV-positive women in general and those enrolled in the MMs Program. The HIV-positive women said that they often did not know what to expect from the MMs in terms of initial approaches. In addition, the MMs wanted to receive more guidance from supervisors about what is expected during the first visits. Another main challenge, which has since been resolved, was MMs arriving in uniforms on bicycles and with folders that made them easily identifiable as coming from a health facility and being recognized as linked to an HIV program. Shortly after this challenge was registered in the early stages of program implementation, all identifiable MM items were removed to keep confidentiality and avoid misinterpretation from community members. The MMs reported many other challenges performing their job, such as insufficient stipends and resources, distances that were too far to cover, and too many patients to see. The COVID-19 pandemic created the additional challenge of not being able to visit homes, which resulted in even more strains on financial resources to get airtime for phone calls to women.

Participants made recommendations to strengthen MM training and support, improve communication to the HIV-positive women, create a stronger link with the community and increase the number of MMs trained and working.

The MMP fills a much-needed gap of helping to improve HIV-positive women's understanding of antiretroviral therapy (ART) and the importance of returning to the health facility for treatment follow-up. The program also helps MMs and HIV-positive women have a sense of community. There are many opportunities to strengthen and improve this program. The creation and implementation of this program in Mozambique has been a step in the right direction, but more work is needed for this program to reach its full potential.

BACKGROUND

HIV in Mozambique

Mozambique is among the countries most affected by the human immunodeficiency virus (HIV) epidemic with a national HIV prevalence of 13.2% among adults ages 15-49 (MISAU, 2018). The country's highest adult HIV prevalence is in Gaza Province at 24.4% (MISAU, 2016). At the end of 2020, there were an estimated 2.2 million people living with HIV (PLHIV), with a higher prevalence among women (15%) compared to men (9%). As of 2020, only 1,402,902 patients were receiving antiretroviral therapy (ART) (MISAU, 2020). Despite significant efforts to fight HIV, there are still many challenges to keeping HIV-infected individuals in treatment and care.

Strengthening retention among HIV-positive pregnant and lactating women is a major priority for the HIV program in Mozambique. Enhancing ART initiation and adherence and retaining women in care is crucial for the prevention of maternal-to-child transmission (PMTCT) of HIV. In Mozambique, a patient is considered not retained if he or she does not pick up their ART prescription within 60 days (if they need to pick up pills monthly) or 90 days (if they need to pick up pills every three months) after their scheduled appointment.

Background of the Mentor Mother Program in Mozambique

In 2016, the 12-month retention rate in Mozambique at the national level was 71% among adults, excluding pregnant women, and 62% among pregnant women. In Gaza Province, retention was 76% among adults, excluding pregnant women, and 65% in pregnant women (MISAU, 2017). Low retention among pregnant women is problematic, as PMTCT effectiveness depends on maternal adherence to ART. To address the need for innovative strategies to improve retention in care and treatment among HIV-positive pregnant women, the Mozambican Ministry of Health (MOH) and its partners launched the Mentor Mother Program (MMP) (originally called *Educator Mothers*) in March 2016 at pilot facilities selected for their high patient volumes and HIV prevalence levels. The national mentor mother (MM) strategy is now implemented at facilities across the country, serving more than 80% of HIV-positive pregnant women in Mozambique. The MOH is currently working to standardize implementation methodologies.

The MMP trains HIV-positive women to provide support as MMs through home visits for pregnant HIV-positive women, HIV-positive lactating women, and HIV-exposed and infected children until they are discharged based on their last HIV status and after more or less 21 months of breastfeeding. The training includes guidance on skill building, conducting home visits, adherence counseling, screening for tuberculosis and malnutrition, instructions on how to complete program forms, and additional topics regarding pregnancy and the postpartum period. Depending on their individual performance during training, MMs are assigned to one of the following positions: MMs, who perform the majority of home visits, and MM supervisors; the coordinator of the MMP, called the MM focal point, remains at the health facility. Some of the requirements to become an MM include an HIV-positive status, adherence to ART, basic literacy in Portuguese, and a willingness to openly discuss their HIV-status with other women.

The MMP was launched in 2016 in Gaza Province by the Elizabeth Glaser Pediatric AIDS Foundation (EGPAF). Table 1 below presents cumulative numbers of MMP indicators in 12 districts of Gaza Province from 2016 to Q2 2019.

Table 1. Cumulative MMP Indicators in Gaza Province 2016 - 2019 Q2

Districts	Xai-Xai	Chong oene	Limpopo	Chibu to	Manjaca ze	Guijá	Mabala ne	Cho kwé	Bile ne	Mapai	Chicuala cuala	Massi ngir	Total
# Pregnant women followed	294	127	257	114	216	255	47	534	898	22	18	50	2832
# Lactating women followed	484	308	634	607	486	467	115	1223	1187	44	53	87	5695
# Exposed children followed	492	309	644	612	494	470	117	1224	1188	45	54	87	5736
# Children on ART	196	72	201	290	148	69	60	295	233	10	25	26	1625

Study Rationale

The purpose of the study was to examine the acceptability of the MMP from the participating mothers, explore if MMs were satisfied with their work and work environment, identify program challenges, and establish strategies to improve the program. After conducting a literature review of similar programs, our team chose to focus on the following program implementation challenges: (i) MMs not being welcomed in the home (mainly in the urban setting); and (ii) lack of adequate transportation, funding, and motivation.

This study was implemented in November and December 2020 in Gaza Province. The study presented a unique opportunity to better understand the MMP in Mozambique, as the program had not yet been evaluated. While previous qualitative studies evaluated peer-support programs, each culture and context are different, and this evaluation provided support to understand what has been effective in Mozambique and what needs further improvement.

The results of this study are critical to understanding the acceptability of this program and identify that changes that are needed to improve the program. The study findings will help identify strategies that can ensure more acceptability of the MMP by HIV-positive women visited at their homes and communities and strengthen the capacity of HCWs to better support the MMP. In addition, the study findings will be valuable to design strategies that can address barriers related to MMP implementation and improve retention of HIV-positive women and their children in HIV care and treatment services.

METHODOLOGY

Study Objectives

General Objective:

The general objective of this study is to assess the barriers, facilitators, and acceptability of the MMP in Gaza Province.

Specific Objectives:

- To identify the barriers that MMs experience while providing support to HIV-positive women through the MMP.
- To identify the positive factors that MMs experience while providing support to HIV-positive women through the MMP.
- To identify the barriers that HIV-positive women face when receiving support through the MMP.
- To identify the positive factors for HIV-positive women in receiving support through the MMP.
- To explore HCWs opinions of the MMP.
- To explore the acceptability of MM visits among mothers enrolled in the MMP.

Study Design

To identify recommendations to strengthen the MMP and to assess the barriers, positive factors, and acceptability of the MMP, this study used a qualitative study design. Data was gathered through in-depth interviews (IDIs) and focus group discussions (FGDs).

Stakeholder Engagement

During the protocol design phase, the proposal was introduced and presented to the Provincial Health Directorate and Research Unit from Gaza to determine if it was relevant for the province. Provincial Research Unit personnel were also invited to be part of the protocol evaluation as co-investigators. Subsequent meetings took place to discuss the implementation and mapping of stakeholders. After the protocol review and approval by the ethics boards was granted, the study team visited all district health directorates and the Maternal and Child Health (MCH) medical-chief in charge of the selected health facilities to introduce the protocol and request their collaboration during the evaluation data collection period. During this meeting, strategies were discussed, such as what is the most appropriate way to approach participants, relying on their local experience.

Study Population

Table 2 below presents an overview of the study population along with inclusion and exclusion criteria for participation in the study.

Table 2. Overview of Study Population and Inclusion/Exclusion Criteria

Participant Group		Inclusion Criteria	Exclusion Criteria
MMs		<ul style="list-style-type: none"> At least 18 years of age Received training as a MM Provided services as a MM in the selected sites for at least six months in the previous 12-month period Consented to participate in the study 	MMs who were dismissed from the MMP for any reason
HCWs		<ul style="list-style-type: none"> At least 18 years of age Nurses who worked in antenatal care (ANC) and child-at-risk consultation (CCR) units at health facilities (HFs) where research was taking place for at least six months in the last 12-month period Consented to participate in the study 	HCWs in training for the MMP
MM Supervisors		<ul style="list-style-type: none"> At least 18 years of age Received training as a MM Worked as an MM supervisor for at least six months in the last 12-month period Consented to participate in the study 	MM supervisors who were dismissed from the MMP for any reason
HIV-positive women		<ul style="list-style-type: none"> At least 18 years of age Pregnant or postpartum HIV-positive women Invited to be visited at home by MMs (included both those who accepted and those who did not accept visits) Consented to participate in the study 	HIV-positive women who no longer reside in the catchment area of the selected site
Key informants	MM program manager	<ul style="list-style-type: none"> EGPAF staff Responsible for the MMP at the national level, including program design and monitoring until the program adjustment period, whenever needed Manager of the entire MMP implementation process Consented to participate in the study 	Manager/Coordinator of the MMP implementation at another district level

	MM Program Coordinator	<ul style="list-style-type: none"> • EGPAF staff • Responsible for field implementation of the MMP • Coordinated MMP activities • Consented to participate in the study 	N/A
	MM focal point	<ul style="list-style-type: none"> • At least 18 years of age • Received training as a MM • Worked as an MM focal point for at least six months in the last 12-month period • Consented to participate in the study 	MM focal points who were dismissed from the MMP for any reason

Study Sites

The study was conducted in Gaza Province, Mozambique. Gaza Province has a population of 1,446,654 inhabitants (INE, 2017). It has 14 districts and 143 HFs, including 109 health centers, one provincial hospital, five general and rural hospitals, and 28 health posts. The study was conducted in nine HFs in nine districts: Bilene, Limpompo, Mandlakazi, Chibuto, Guijá, Chokwé, Mabalane, Chongoene, and Xai-Xai. Xai-Xai City is the capital of the Gaza Province. The districts were selected based on their designations as EGPAF high priority districts for implementation, (i.e. based on the number of Analyzing Joint Underperformance and Determining Assistance (AJUDA) health facilities in the district). Additionally, one northern district (Mabalane) was included to ensure better Gaza Province representativeness.

HFs were selected based on the presence of an MM focal point. The majority of the MM focal points were based in HFs, with the exception of two districts that were based in rural hospitals. The field team visited seven HFs (Bilene, Xai-Xai, Chongoene, Chibuto, Guijá, Chockwé, and Mabalane) and two rural facilities (Manjakazi and Chicumbane Rural Hospital).

Participant Recruitment

Participant recruitment varied by study population as outlined below:

Mentor Mothers

Evaluation assistants (EAs) and study coordinators (SCs) identified and created a list of all MMs who supported the selected sites for each district. This list was used by the EAs to randomly select participants for the FGDs. All names of the eligible MMs were put in a bag, and EAs randomly selected 12 names to identify participants for the FGDs. The 12 selected MMs were contacted by the EAs, informed of the day and time of the FGD, and invited to participate. For MMs who refused or were unable to participate in the FGD, additional names were randomly selected until there were 12 participants interested in and able to join the FGD. Although 12 MMs were invited to participate, it was understood that not all would show up at the FGD. The minimum number of women needed to conduct the FGD was six.

Health Care Workers

The field team invited HCWs from the ANC and CCR units to participate in the IDIs. For selection, the head nurse or the HCW in charge of the HF was asked to provide a list of all eligible HCWs who were working in the HF during the weeks that interviews were being conducted. The names of the eligible HCWs were put in a bag and randomly selected by the EAs or SCs. The EAs, with support from the head nurse, informed the selected HCWs about the study, invited them to participate, and identified convenient dates and times for their interviews. In situations where selected participants were unable to join the study or were not interested, additional names were randomly selected until there was one participant for each district.

Mentor Mother Supervisors

EAs or SCs identified and created a list of all MM supervisors who supported the selected sites for each district. All names of the eligible supervisors were put in a bag and EAs or SCs randomly selected one name per site for the IDIs. EAs contacted the selected MM supervisors and invited them to participate in an IDI. In situations where a selected participant was unable to join the study or was not interested, another name was randomly selected until there was one participant for each district.

HIV-positive women

The participants of this group were interviewed and divided into two subgroups:

1. Mothers enrolled in the MMP

Using the existing MMP participant database, a list of all eligible HIV-positive women enrolled in the MMP was extracted. The EAs or SCs used simple random sampling to select three to five women to participate in IDIs. The EAs, with support from the MMs, contacted the randomly-selected women, either in person or by phone, to inform them of the study, invite them to participate, and set up a date and time for the IDI. During these interactions, the EAs confirmed the women were eligible to participate in the study. No study data was collected during these interactions.

2. Mothers who declined enrollment in the MMP

During data collection, the HCWs were informed about the selection criteria for the HIV-positive women who refused to enroll in the MMP. Participants were contacted in the order of most recent refusal based on the list generated at the health facility level. The MM supervisors or MMs supported the EAs in contacting women who had refused to participate in the MMP and asked if they were willing to be contacted by the study team. For those who accepted, the EAs called them to confirm that they were eligible to participate in the study and invite them to return to the facility, or a more convenient location, for the IDI. During the call, EAs informed the eligible women about the study; however, no study data was collected on this call. Recruitment stopped once the sample size was achieved.

Key Informants:

- a) **Mentor Mother Program Manager:** There were two MM managers for the Gaza Province. The study principal investigator (PI) contacted them at their offices, informed them about the study, and invited them to participate in an IDI. A convenient time for their interview was identified, and the PI conducted the IDI.
- b) **Mentor Mother Program Coordinator:** There were two MM program coordinators, and the PI or SC contacted them at their office, informed them about the study, and invited them to participate. A convenient time for their interview was identified, and the PI or SC conducted the interview.
- c) **Mentor Mother Focal Point:** Each site had one MM focal point, and all of them were invited to participate in an IDI. The MM focal points were contacted, invited to participate in the study, and interviewed by the EA or SC. The participants were contacted at the HF either in person or by phone.

Sample Size

Mentor Mothers were the only individuals who participated in FGDs; all other study participants took part solely in the IDIs. FGDs with MMs gathered information about their experiences providing services to the HIV-positive women, the challenges they face, their ways of addressing the challenges, and their solutions to improve the MM position. A total of eight FGDs were conducted, one in each of eight out of nine districts; one of the original nine districts did not meet the FGD eligibility criteria (at least 6-8 FGD participants).

Information about individuals' experiences and perceptions of the MMP were gathered through IDIs. The interviews were conducted, with the HIV-positive women receiving MM visits to understand their experiences with being mentored, how the mentoring affected their ART adherence, what they perceived to be the positive aspects of the mentoring, and what areas could be improved. The interviews with the HIV-positive women who declined to receive the MMs focused on why they declined the services, what their concerns were, and what improvements could be made to the MMP to increase their likelihood of enrolling in the MMP.

In-depth interviews with all other participants sought to explore their perceptions of how the MMP had influenced the HIV-positive women's ART adherence, strengths and weaknesses of the program, challenges with implementation, and recommendations for improvement. A total of 92 IDIs were conducted. Table 3 provides details on the sampling and type of data collection for each participant group.

Table 3. Data Collected Through FGDs and IDIs by Participant Group

Participant Group		IDI	FGD
Mentor Mothers			8 (68 to women)
Mentor Mothers Supervisors		11	
Health Care Workers		15	
HIV-positive women	Enrolled in the MMP	45	
	Refused to enroll in the MMP	9	
Key Informants	MM Program Manager	1	
	MM Program Coordinator	2	
	MM Focal Point	9	
TOTAL		92	8 (68 to women)

Data Collection Procedures

In-depth interviews were conducted using a semi-structured guide in Portuguese or Changana (a local language widely spoken in Gaza), depending on each participant's preference. Focus group discussions were conducted using a semi-structured topic guide in Portuguese with translation to Changana. The guides were flexible and provided an opportunity to gather participants' perspectives and opinions and allow for them to elaborate on topics that were important to them. Please see the FGD and IDI guides in appendices A, B, C, D, E, F, G & H.

The data collection tools were designed in English and translated to Portuguese and Changana. All study instruments were pre-tested during a pilot stage and prior to study initiation. The piloting occurred during the data collection training with the EAs who were responsible for collecting data. The pilot stage involved practicing using the data collection forms with participants who matched the study eligibility criteria. Participants for the piloting were selected using convenience sampling and were from HFs not included in the study. This exercise was conducted to ensure EAs gained experience with the tools. All participants who were requested to participate in the piloting of the tools were told that the piloting was just a means of practicing with the data collection tools and that none of the information acquired was to be used in the study. Nonetheless, a written consent was obtained from these participants. Any individual who participated in the piloting was not eligible to participate in the study.

EAs were oriented on the protocol and trained in human subject research ethics and qualitative data collection skills. The field team was composed of two groups: one working in the southern districts of the Gaza Province (Xai-Xai, Bilene, Mandlakazi, Chongoene, and Limpopo) and the other working in the central districts (Mabalane, Guijá, Chokwe, and Chibuto).

Upon arrival at the scheduled IDI site, the EAs confirmed the participant's eligibility. For those who were eligible, the EA read the informed consent form to the participant and answered any

questions about the study. If the participant voluntarily agreed to participate in the study, written informed consent was obtained prior to their interview. Participants were also given the opportunity to ask questions at the end of the interview and withdraw from the study at any time during the interview.

Study participants were assigned a unique ID number that was not linked to their identifiable personal information. All data was collected under this study ID. The IDIs were conducted by an EA using the semi-structured guide. All unclear questions were clarified.

Upon arrival, FGD participants (MMs) were greeted by the EAs and the informed consent form was read aloud to the group. The participants were then taken aside individually to be asked questions and complete the enrollment form with the EA. The MMs who agreed voluntarily to join the study were asked to provide written consent by signing the consent form. Those who consented were assigned a unique study ID and had their demographic data collected in an enrollment form. Demographic data for IDIs and FGDs participants included such information as age, gender, how long the participant had been visited, how many visits they had received, how many different MMs had visited them, the name of the HF, their role at the facility and the length of time in their role.

The EAs were trained to take detailed notes during the IDIs and FGDs, which they used to generate summary notes following each session. Interview notes documented observations about the participants' behavior and the environment of the interview (e.g., if there were interruptions or if the participants appeared comfortable or uncomfortable). All IDIs and FGDs were audio-recorded and the recordings were downloaded to computers as a safeguard.

Data Analysis

The recorded data were transcribed by the EAs and translated into Portuguese where needed and translated into English by the study Principal Investigator. The topics explored in the IDIs and FGDs included MMP participation availability and barriers, challenges experienced providing the MMP services, women's reactions to participate in the MMP, acceptability of male partners receiving MMs at households, and strategies to improve MMP implementation. Notes from the IDIs and FGDs were added to the transcripts.

Transcripts were read to identify core issues or themes. Codes were created/defined with examples from the transcripts, using an inductive approach (derived from the data itself) and deductive approach (derived from the literature). Codes were cross-checked and validated with data collection tools to ensure codes efficiently captured all data elicited during interviews. Based on the interviews data, the codes were refined to ensure all themes were captured, including the information that emerged during the interview but was not elicited from data collection tools. Qualitative data were coded using the MAXQDA V.12 software program. The codes were summarized through descriptive summaries and data matrixes. The results are presented below by study population.

Ethical considerations and funding

The study was reviewed and approved by the Comité Nacional de Bioética para a Saúde em Moçambique (Mozambique IRB with registration number IRB00002657), the Office of the Associate Director for Science at the Centers for Disease Control and Prevention (CDC), and the ADVARRA (US IRB with registration number 0000097). All study staff were trained in human research subjects protection prior to contact with any study participants and all personnel who had access to the data were required to sign a data use and confidentiality agreement.

The principal investigator was accountable for the ethical conduct of the research study as well as overall oversight of all study activities, including obtaining conflict of interest certifications from co-investigators. The principal investigator ensured that all staff had completed the required training prior to the initiation of data collection. Co-investigators at the CDC did not intervene or interact with living individuals or have access to identifiable information for research purposes. There were no conflicts of interest identified in this study.

This evaluation was funded by the President's Emergency Plan for AIDS Relief (PEPFAR) through the CDC Cooperative Agreement NU2GGH001945. The CDC was the activity sponsor and CDC investigators took part in the evaluation. The evaluation budget approved and allocated for implementation was USD 32,832.20.

RESULTS

Summary of Study Population

Using IDIs, a total of 54 HIV-positive women were interviewed: 45 women who were enrolled in the MMP and nine women who refused to be enrolled in the MMP. The mean age for both groups of HIV-positive women was 30 and the majority were married. All women reported that they had disclosed their HIV status and, across both groups, about one third had no formal education. A difference between the two groups of women was seen among those enrolled in the MMP, they had known their status considerably longer and were on ART longer than those who refused enrollment (72 months vs 45 months). See Table 4 for details.

Table 4. Demographic data for HIV-positive women enrolled and refused enrollment in the MMP

	HIV-positive Women Enrolled N=45(%)	HIV-positive Women Who Refused Enrollment into the Program N=9 (%)
Age (years)		
Mean [SD]	30.27 [6.13]	30.4 [6.56]
Marital Status		
Single	15 (33)	2 (22)
Married	26 (58)	7 (78)
Unknown	4 (9)	
Education Level		
No education	12 (25.5)	3 (33)
Primary education	17 (38)	2 (22)
Secondary education	12 (26.5)	4 (45)
Unknown	4 (9)	
Time knowing HIV status (months)		
Median (IQR 25,75)	72 (35.5,84)	45 (12,72)
Time on ART (months)		
Median (IQR 25, 75)	72 (35.5,90)	45 (12,72)
*One HIV-positive woman from those enrolled in MMP was a widow		

A total of 70 MMs participated in the FGDs. The mean age was 35 years old, standard deviation (SD) 7.9. All of them had some level of education, with 60% (n=42) having secondary education, and 76% (n=53) having been an MM for three or more years.

A total of 11 MM supervisors were interviewed. The mean age was 36, SD 8.6. Eight MM supervisors (73%) had secondary education. Additionally, seven (64%) had been supervisors for three years and one had been in the role for one year. There were 15 HCWs who participated in the study, all of whom were women. The majority of the HCWs were nurses, in addition to one HCW who was the head of the MCH unit, one working across the ANC unit, one from the CCR

unit, one from the maternity unit, and five from the MCH unit. All HCWs had been in their position for at least 12 months. A total of 12 key informants were interviewed, which including one MM program manager, two MM program coordinators, and nine MM focal points.

Summary of Study Results

Based on the data from IDIs and FGDs we have structured our results to reflect the progress and challenges mentioned within MM program implementation.

Program Facilitators

- HIV-positive women
 - Study findings showed that HIV-positive women enrolled in the MMP still had many questions about ART following the traditional counseling, specifically around the frequency of when to take their medications. Through MM support, HIV-positive women gained a better understanding of the reasons that medication should be taken, that ART protects their child, and that they can live a long life on ART.
 - They learned why they should return to the facility and what the benefits were from the MMs.
 - MMs attended clinical appointments with the HIV-positive women, which encouraged the mothers to return to the facility. The MMs provided moral support and there was a lower chance of the mothers being scolded by HCWs if they were late or there was another problem.
 - HIV-positive women who attended appointments with their MMs had priority and would save time in the queue as they are considered as referred patients.

“What I really like about this program is to be sensitized, encouraged to take medication, not to leave, take medication at the same time every day... It is important because I feel so good in my life when complying with the treatment, and when they (MMs) also help me in giving advice to continue with the medication...”
(HIV-positive Mother, Enrolled)

- They received support to help disclose their HIV status, including partner counseling and sometimes MMs serve as a link with the male from Male Champion Program who go to the houses to talk to the male partners.

“They adapted a way to test us all so that it looks like we’re testing for the first time so that he doesn’t discover that I take pills and so that we can all keep our secrets... They read it... So, they took our two documents (results) and showed them that there are two red signals! And we answer “yes”... So, what does it mean? And, we answer that it means that we all have disease... But my husband said, “hey... I don’t believe it.” I’ll go to another hospital” (HIV+ Mother, Refused Enrollment)

- There was reduced guilt and shame about their HIV status; HIV-positive women reported feeling less alone, less isolated, having more control over their health, and “feeling free.”
- MMs
 - Training to become an MM made MMs feel more knowledgeable about HIV and health issues in general, even though some did not finish school.
 - They reported feeling more valued and important.
 - They discussed no longer feeling “alone,” as the program provided a sense of community.

“What I like most, most, is that when I’m inside, just like today that within the group we are gathered in. I feel good; my heart is not poor. Because when I see the sisters, I see myself too, and I feel very happy.” (MM)

- Their self-stigma decreased through participation in the program.
- They had a feeling of satisfaction for having an impact on others’ lives-- MMs felt like they were really making a difference.

“For me, I feel good because I see a lot to change, for example, here at the health center. Because there were mothers who didn’t always come to the hospital, but because of our help and mothers who work in the field, when we see that a mother didn’t show up at the hospital, we call her if she has a contact. If she has no contact, we write a search paper; we call an MM who works there. We give that information to the MM, and that MM has to go looking for that mother until she finds her, and when she finds it, she has to bring her to the hospital. We come to talk to that mother and that mother we insist until we are our friend...we insist that mother until she accepts.” (MM Supervisor)

- HCWs/Key Informants
 - They strongly valued the MMs bringing the women back to the facility.
 - They felt that their workload was significantly reduced by the MMs’ support.

“...Because they help us. They help us, they do a wonderful job, they also reduce our burden, you see her (MM) at work...” (Key Informant)

- They wanted even more MMs in the community and within more units at HF to receive women.

“...I feel that we need more mentor mothers. We have peripheries that are very distant from the health unit, that the mentor mothers cannot reach, but we have mothers there who need our support. It is these mothers who are to some extent at fault; others abandon treatment. Now, if you could support us in this regard, we would be very grateful. Yes, we feel that the number we have is still... it is little.” (Key Informant)

- They had a better idea of what patients’ health conditions were.
- They felt a strong linkage between MMs and health care workers.
- They saw retention in care increase due to MMs.

Program Barriers

- HIV-positive women
 - Communication about what to expect with the MMP was inadequate – mothers did not know what would happen when an MM came to their house the first time, were not informed that the MM would maintain confidentiality regarding their HIV status and did not know what the MM was doing when they visited neighboring houses (which raised confidentiality concerns).
 - Male partners were often a challenge for implementing the MMP- sometimes they did not permit the MMs to enter/interact with their wife. Some males also threatened the MMs.
 - At the beginning of MM program implementation, there were concerns about MMs visiting homes, but most of these were resolved after EGPAF study staff addressed the following issues:
 - Uniforms, folders, and bicycles identified the MMs as being from the HF and raised suspicions among neighbors. However, with the removal of the uniforms, bicycles logos, and folders (often hidden under clothing), the MMs were more welcome at the women’s homes.
 - MMs were unknown in the community and strangers wandering among the community raised concerns, but after introductions were made with community leaders, the MMs were welcomed into the community.

“Those mothers when they come to our homes, do not wear those shirts [uniform]... when they come to our homes because they wear T-shirts [Normal clothing]...” (HIV+ Mother, Enrolled)

“... [One] time there was someone who spoke in front of other people that was not confidential...” (HIV-positive Mother, Enrolled)

- MMs
 - Inadequate resources to do their job.
 - Stipend was insufficient – costs of travel sometimes exceeded the stipend.
 - Needed adequate phone credit to call patients and their supervisors; and
 - Had to use their own resources (soap, masks, etc.) to work during COVID.
 - Unable to locate some women in the community due to
 - False addresses.
 - No phone number; and
 - Women at work during the day.

“So, this job is very difficult, to follow people, because some addresses are not clear...you

just go, but you just don't find it...we don't know why they give wrong addresses...” (MM)

- Not enough MMs to meet with the number of women requiring support.
 - This was especially the case with the distances that the MMs had to cover and reaching the peripheral communities.
- Workload was unrealistic.
 - Many MMs ended up working seven days a week, without leave, and some worked in the evenings to be able to reach the women.

“...We work even on Saturdays and Sundays... even on Sundays if she wants to... because the patient has time on Sunday when she returns from the church ... So, I'm a mentor mother... I go visit the patient because from Monday I will not find her...” (MM)

- Inadequate space at the facility to do their job, which created challenges when they needed to counsel women. Women were often not comfortable speaking in front of others in a shared room.
- Lack of clarity in their roles
 - The role of the MM at the facility was not clear to all HCWs.
 - Communication between the different MMP roles was not clear: who to reach out to, sometimes MM focal points are not available, etc.
 - They felt they needed more training when promoted to a new role.
- With COVID, there was an increased need for phone calls and phone credits.
 - MMs used to come into the facility to use the phone because it had credit, but far too many MMs needed to use the one available phone at the facility. Each MM supervisor had their own group of MMs who needed to use the phone to call their own patients.

“At the time of COVID, we were at the hospital and worked using the phone... the service cell phone was divided into groups of three... each member of the group took the list and needed to use the cell phone. We used the same [phone].” (MM)

- With COVID, more meetings were conducted by phone, which MMs felt were not as effective.
 - MMs felt they could reach more women by phone, because more people were comfortable with phone visits and the calls were more private.
 - However, MMs felt that it was easier for the mothers to be dishonest on the phone about their medication adherence. Many felt that they could not hold the HIV-positive women accountable.

“When we arrived at the office, they said to work with the phone [to call HIV-positive women instead of home visits]... I felt that was not enough ...Working on the phone with that mother... I didn't like working at home, it's like working at home, because as I am used to talking to her) live... I like to talk to her face-to-face until I show her the card and

the [remaining] medicine..." (MM)

- HCWs/Key Informants
 - Some reported being frustrated when MMs failed to locate some of the requested mothers in the community.
 - Some reported challenges with the record keeping because not all the MMs were literate.
 - Paper-based reporting was a challenge.
 - Having MMs complete paperwork manually meant that they were carrying around pamphlets, pens, etc. and could lose some paperwork, which made it challenging.
 - There were issues with storing MM records. For example, there was a need for a cabinet or something similar.

Recommendations for Improvement

Based on the interviews from study respondents, the study investigators proposed some recommendations to improve MM program implementation. These recommendations include:

- Strengthen MM training and support
 - Need enhanced training/preparation for the first visit to a HIV-positive woman's house; consider a shadowing day.
 - Need more training for being promoted to new roles.
 - More adequate support of whom to call when there are problems. There should be a strong enough support system once everyone felt overstretched.
 - Need to provide more support to MMs, creating mechanism about whom to contact when facing challenges in the field.
- Improve communication to HIV-positive women prior to the first visit.
 - Clear communication about what exactly happens when the MM comes to the house.
 - Clear communication that the MM is required to maintain confidentiality of patients.
 - Explain why the MMs also visit neighbors' houses (e.g., they might discuss sanitation and other topics with the neighbors to avoid drawing attention to the HIV-positive mother's house).
- Create a stronger link with the community.
 - Need a community member who can help identify the homes of women in the community. This person does not necessarily need to know this is an HIV program. Need to identify someone who is able to communicate with the facility.

- Strengthen support to male partners
 - Utilize the male support program more frequently (male mentor program or male HCWs) to help men educate women’s partners
 - In case HIV status disclosed, there’s a need to provide education for the male partners about the purpose of the MMP, benefits of the MMP, the role of the MMs, and what is expected of the HIV-positive women.

- Develop a method to reach women in the peripheral areas.
 - Some participants proposed to take a group of MMs, drop them off in a peripheral area that was difficult to reach, let them make their visits, and then drive them back to the HF.
 - Better transportation system is needed for MMs to reach peripheral areas

- Increase the number of MMs who are trained and support the HFs.
 - There are not enough MMs available to track and follow as many mothers as needed.

Table 5. General Quotes from Study Participants

PROGAM FACILITATORS	
HIV-positive women	<p>Improved understanding of ART and retention:</p> <p><i>“What I really like about this program is to be sensitized, encouraged to take medication, not to leave, take medication at the same time every day... It is important because I feel so good in my life when complying with the treatment, and when they (MMs) also help me in giving advice to continue with the medication...”</i> (HIV-positive Mother, Enrolled)</p> <p>Disclosure support</p> <p><i>“They adapted a way to test us all so that it looks like we’re testing for the first time so that he doesn't discover that I take pills and so that we can all keep our secrets... They read it... So, they took our two documents (results) and showed them that there are two red signals! And we answer “yes”... So, what does it mean? And, we answer that it means that we all have disease... But my husband said, “hey... I don’t believe it.” I’ll go to another hospital”</i> (HIV+ Mother, Refused Enrollment)</p>
Mentor Mothers/ MMP Staff	<p>Feeling of satisfaction for having an impact on others’ lives:</p> <p><i>“For me, I feel good because I see a lot to change, for example, here at the health center. Because there were mothers who didn’t always come to the hospital, but because of our help and mothers who work in the</i></p>

	<p><i>field, when we see that a mother didn't show up at the hospital, we call her if she has a contact. If she has no contact, we write a search paper; we call an MM who works there. We give that information to the MM, and that MM has to go looking for that mother until she finds her, and when she finds it, she has to bring her to the hospital. We come to talk to that mother and that mother we insist until we are our friend...we insist that mother until she accepts.” (MM Supervisor)</i></p> <p><i>“We sometimes find people who do not accept going to the hospital... Others deny that they are afraid (phone vibrates). If they are afraid, we will accompany them... They say they are afraid of the delay in attending the hospital. And we have sensitized them to facilitate their care at the hospital, but...Yes, to be attended too soon... Yes, they accept, and we take them for treatment.” (MM)</i></p> <p>Psychosocial benefits</p> <p><i>“What I like most, most, is that when I'm inside, just like today that within the group we are gathered in. I feel good; my heart is not poor. Because when I see the sisters, I see myself too, and I feel very happy.” (MM)</i></p>
<p>HCWs/Key Informants</p>	<p>HCW workload reduced:</p> <p><i>“...Because they help us. They help us, they do a wonderful job, they also reduce our burden, you see her (MM) at work...” (Key Informant)</i></p> <p>Need for more MMs:</p> <p><i>“...I feel that we need more mentor mothers. We have peripheries that are very distant from the health unit, that the mentor mothers cannot reach, but we have mothers there who need our support. It is these mothers who are to some extent at fault; others abandon treatment. Now, if you could support us in this regard, we would be very grateful. Yes, we feel that the number we have is still... it is little.” (Key Informant)</i></p>
<p>PROGRAM BARRIERS</p>	
<p>HIV-positive women</p>	<p>Initial concerns about attire during home visits:</p> <p><i>“Those mothers when they come to our homes, do not wear those shirts [uniform]... when they come to our homes because they wear T-shirts [Normal clothing]...” (HIV+ Mother, Enrolled)</i></p> <p>Concerns about confidentiality:</p>

	<p><i>“... [One] time there was someone who spoke in front of other people that was not confidential...” (HIV-positive Mother, Enrolled)</i></p> <p>Women unavailable to meet during the day:</p> <p><i>“...other days they call me, I am in the field... my field is too far away.... Then if they come and can't find me, it gets very ugly. They come home. One day they called me to say that we are coming to your house, will you have time? I said, “ No!”” (HIV+ Mother, Enrolled)</i></p>
<p>Mentor Mothers/ MM program staff</p>	<p>Lack of preparedness for initial home visit:</p> <p><i>“When the program started, it was difficult for me at first... I did go to training... I was afraid because they are things I haven't done yet...” (MM)</i></p> <p>Challenges locating women:</p> <p><i>“So, this job is very difficult, to follow people, because some addresses are not clear...you just go, but you just don't find it...we don't know why they give wrong addresses...” (MM)</i></p> <p>Overworked MMs:</p> <p><i>“...We work even on Saturdays and Sundays... even on Sundays if she wants to... because the patient has time on Sunday when she returns from the church ... So, I’m a mentor mother... I go visit the patient because from Monday I will not find her...” (MM)</i></p> <p>Inadequate supplies:</p> <p><i>“We complain a lot in this part of notebooks, pens and folders are also no longer in [working]condition.” (MM)</i></p> <p>Challenges with male partners:</p> <p><i>“Sometimes there are patients...the wife accepts our visits and there comes a time if the husband was not there before, the husband arrives there and he does not accept it for the mother mentor go in there to visit, and sometimes even with a machete he threatens you with a machete saying “I’m going to cut you if you don’t want to leave my house...”” (MM Supervisor)</i></p>

	<p>COVID</p> <p><i>“At the time of COVID, we were at the hospital and worked using the phone... the service cell phone was divided into groups of three... each member of the group took the list and needed to use the cell phone. We used the same [phone].” (MM)</i></p> <p><i>“When we arrived at the office, they said to work with the phone [to call HIV-positive women instead of home visits]... I felt that was not enough ...Working on the phone with that mother... I didn’t like working at home, it’s like working at home, because as I am used to talking to her) live... I like to talk to her face-to-face until I show her the card and the [remaining] medicine...” (MM)</i></p>
<p>HCWs/Key Informants</p>	<p>Challenges with initial acceptance of the MMP in the community:</p> <p><i>“I would say that the program's acceptability at the beginning... it was a little difficult... yah even though we got our system colleagues involved... In the context of community development, it took time for community leaders and communities to understand why we have women...” (Key Informant)</i></p> <p>Overworked MMs</p> <p><i>“Yeah, another challenge that I’m looking at maybe if the MM’s leadership couldn’t afford at least a little time for them to rest because as far as I know, the MMs have no right to vacation but sometimes. I think it’s suffocating to be working every day from January to December, from Monday to Friday and a little difficult.” (HCW)</i></p> <p>Lack of training</p> <p><i>“I entered without a clue. I went to training, of course. But I entered without the notion of where and how to start. But I had people there to support me...” (Key Informant)</i></p> <p><i>“I didn’t know what it was like to be a supervisor, how to manage, how to follow people being... in front of... other people's, yeah... although our ages are ages that are very much closed. But it wasn’t easy; actually, it wasn’t easy, and moreover, I didn’t have any integration [training].” (Key Informant)</i></p>

RECOMMENDATIONS

Strengthen the MMP

Need for continued training

"...In this training, we saw that it [was] animated and we did well in it, but we would like to continue learning. When we started working, we started training and [they] taught us about what we would need for the job ...[We need to] renew knowledge and continuing to learn one and another thing that we didn't learn in the first training. There was a time that we had a training to work with phones..." (MM)

Need for more MMs

..."I could say increase the number of MM I can say because we have a responsible MM here in each office. But for example, my MM has been sick for two days, and she doesn't come to the health unit then there since it's a little difficult because an MM has to work here she has to work there maybe if there was communication. I mean, I can say those MMs that in case of illness then it can come to replace the work of the colleague for a few days later I think it would be good. I: So, if you increase the headcount, it would be more or less than how many MMs? P: Ahhh, maybe one, two, or three would be normal. So, the other one could ensure it like that because I have to go and ask for an MM from another sector, so when she is here, sometimes it is needed on the other side, so it gets a little difficult. We just... They end up dividing the time... a little bit of those things go there to see the things here, but I think it is not being easy because even for me working in this sector still going out to meet other sectors is not a task easy. Yes, they do, but I think it is a little difficult for them to work and work." (HCW)

Increased subsidy to MMs

"A little in the case of mentor mothers' subsidies, mentor mothers suicide [exhausting], mentor mothers work a lot, but the subsidy it is not suitable. It was going to improve a little bit in the subsidy part... (MM supervisor)

"In the real salary, that part is the part that touches us the most... Because there is no use biting ourselves saying... what, but it really hurts, we work as it should, we endure burning with the sun, wetting with rain, but our subsidy at the bottom hurts, but we are grateful." (MM)

Electronic record keeping

"It had to be on a server... Because the phone, we can lose. But if there

	<p><i>is a place where information is stored. There you can search... and have the information, for example, of that health unit, that mother who is doing the follow-up for me, that would be an asset.” (Key Informant)</i></p>
<p>Recommendations at the community level</p>	<p>Increased reach in the community</p> <p><i>“So, one of the things that we are introducing that I suggested, and was agreed at the program level, is... is to do a survey of all the distant areas or those outside the coverage areas of the mentor mothers of how many pregnant women, are there? How many eligible patients followed by the mentor mother live in those areas, and we started to create a kind of brigade... Monthly or... or weekly for... to take the group of mentor mothers and transport them to our vehicle and leave there in the morning, they stay to do work, and we arrange an hour at the end of the day and the meeting point to stop the car there to collect them back. We were going to ensure that those patients eligible to follow the mentor mother in that (not understood), can benefit from this... this approach.” (Key Informant)</i></p> <p>Increase use of male mentors for male partners</p> <p><i>“My opinion is that, on my husband's part, maybe if they come with a father (mentor) and arrive to give him advice, it is men who know each other in the way they speak... when they arrive, talk to him but without having him tested because we have already been tested because, the result, he knows what his [serostatus] is. He only denies getting up (going to the hospital) because he is stubborn; he has, he says, they are lying. So, that requires a man to come, to arrive, to have a conversation until he understands.” (HIV+ Mother, Refused Enrollment)</i></p>

DISCUSSION

This study found that women were not receiving sufficient support at HFs and the additional support provided by the MMP was much needed. The HIV-positive women enrolled in the program had many questions about basic medication scheduling and facility attendance. Some MMs reported that women did not know that they needed to take their medication daily or they did not understand that the medication needed to be taken at the same time every day. MMs were providing the additional support needed to strengthen medication adherence. Evaluations of similar programs, such as those involving HIV-positive women who had previously been through the PMTCT program and were supporting other women through the PMTCT program, have also reported improved medication adherence (Wanga, 2019). HCWs highly valued the MMs tracking women in the community who had not returned to the facility and assisting them to return.

One of the initial factors that prompted this evaluation, was concern about the MMs' ability to do their job and whether they were satisfied in their positions. The study found that MMs strongly valued their contribution to improving the lives of HIV-positive women and appreciated the sense of community they felt being among other HIV-positive women. However, the MMs did discuss that the amount of work required was challenging, with some saying they had to work in the evenings and on the weekends, with no leave provided. Insufficient resources also impacted MM's satisfaction with their position. MMs reported that the stipend was insufficient for the amount of travel required and they needed adequate phone credits to communicate with patients.

Another challenge with the MMP was the lack of clarity regarding roles and responsibilities. MMs discussed confusion around their own understanding of what was expected from them when visiting the HIV-positive women. Clarifying the roles and responsibilities would help the MMs more efficiently implement the program and benefit the individuals interacting with the MMs, such as the HCWs. A study evaluating an MMP in Nigeria found that MMs needed a formalized role that was better integrated into the health care system. The Nigeria study also acknowledged the role of the HCWs in the MMP and identified a need for a HCW orientation and sensitization to the MMP (Sam-Agudu, 2018).

Additional information and communication with the community was also needed. Many of the initial challenges in the community stemmed from lack of communication. Patients were not informed of what to expect with their initial MM appointment and some MMs reported patients hid when they visited. MMs learned that uniforms, folders, and bicycles made HIV-positive women uncomfortable, as it identified the MMs as representatives of the HF. MMs saw a significant shift in patients welcoming them when they removed anything potentially identifying them as from the facility. HIV-positive women enrolled in the program valued the MMP, reported reduced feelings of guilt and shame about their HIV status, and felt less "alone" with their HIV status.

MMs also discussed needing a more direct connection with the community to help them locate patients, build more trust, and become more welcomed by the community. They shared that the community members and leaders did not necessarily need to know that they were associated with an HIV program, but just that they were supporting the HF. A previous evaluation of a MMP in Nigeria found that the MMP served as an important link between the community and the facility (Moshe Ibu, 2021).

COVID-19 resulted in additional challenges to the MMP, such as an increased need for adequate supplies, including sanitizer, soap and masks. In addition, since the MMP relies on community interactions, additional communication mechanisms need to be implemented, whether it is phone credits or additional phones at the facility to call patients.

Some limitations were present in the design of this study, primarily that women who started the MMP and dropped out were not interviewed. In addition, all data collection occurred at the health facility, which may have encouraged participants to speak positively, although the research assistants did not report this sentiment.

CONCLUSIONS AND RECOMMENDATIONS

Overall, the MMP fills a much-needed gap, helping to improve HIV-positive women's understanding the benefits of ART and medication adherence and the importance of returning to the facility, while also helping the MMs and the HIV-positive women have a sense of community. There are many opportunities to strengthen and improve this program. Increased organization and planning of the program through the provision of standard operating procedures is an initial step that needs to be taken, followed by increasing resources allocated to the program so that it can be implemented as planned. This will reduce the risk of burnout among MMs and ensure that the targeted women are reached. The creation and implementation of this program in Mozambique is a step in the right direction, but more work is needed for this program to reach its full potential. It's also necessary to continue to monitor and evaluate the MMP at periodic intervals, to understand if the strategies implemented have indeed improved the program and intended programmatic outcomes (e.g., increased/steady adherence of ART among HIV-positive women).

DISSEMINATION PLAN

The presentation and dissemination of the results of this study are the responsibility of EGPAF in accordance with the reporting requirements of their donors and the MOH. The results of this study may be presented at meetings, seminars, or in international journals.

The goal of the dissemination is to:

1. inform the MMP about how to improve the program;
2. notify the MOH about what is and is not working to make them aware of the areas requiring improvement;
3. help inform future collaborations;
4. create opportunities for the expansion of the program to other areas in Mozambique and;
5. contribute to the international body of literature through publications in peer-reviewed journals

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