

Marwo Caafimaad Female Health Workers and Mothers Experiences

Ayan Mohamed

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James Pfeiffer

Kate West

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Abstract

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Ayan Mohamed

Chair of the Supervisory Committee:

James Pfeiffer

Department of Global Health

The aim of this project is to describe the experiences amongst Somali mothers who received health education, antenatal care, and postnatal care from Marwo Caafimaad program in Puntland, Somalia, and to identify barriers and facilitators for the implementation of the program amongst Marwo Caafimaad program female health workers. We analyzed 6 semi-structured focus group discussions with mothers who received care and 9 in-depth interviews with female health workers who provide care to the communities. Key themes were identified as benefits and barriers to accessing the Marwo Caafimaad program. The mothers provided rich descriptions of the challenges in accessing reproductive health services locally. This context is important for understanding and interpreting their discussion of barriers and benefits of the Marwo Caafimaad program in their communities. Mothers highly value the Marwo Caafimaad program because of its community accessibility. Mothers also identified how key resources shortages undermine the impact of the program. The female health workers highly value the program but also recognize

the challenges created by resource limitations and the need for expanded training.

Recommendations are provided to strengthen and scale up the Marwo Caafimaad program.

Introduction

The World Health Organization (WHO) defines maternal mortality as “the annual number of deaths from any cause to or aggravated by pregnancy or its management (excluding accidental or incidental causes) during pregnancy and childbirth or within 42 days of termination of pregnancy.”¹ Somalia is a country located in the Eastern region of Africa and has one of the highest rates of maternal mortality in Sub-Saharan Africa. In 2000, the reported maternal mortality rate was 1,210 deaths per 100,000 live births.² As of 2020, the current maternal mortality rate stands at 621 deaths per 100,000 live births.³ Somalia has observed a 17-year decline in mortality; however, it is still significantly higher in comparison to the global maternal mortality rate reported in 2020 as 152 deaths per 100,000 live births.⁴ Antenatal care from skilled health providers can play a crucial role in decreasing maternal mortality. The WHO recommends a minimum of eight antenatal care visits to reduce complications and increase the likelihood of a healthy pregnancy.⁵ As of 2020, 24% of women (aged 15-49 years) had at least four antenatal care visits with a provider, and 32% of deliveries throughout Somalia were attended by skilled health personnel.^{6,7}

To address the high maternal mortality and low skilled birth attendant rates, through external support and funding from the World Bank and WHO, the Puntland Ministry of Health implemented a community-based female health workers program called Marwo Caafimaad in 2012.⁸ The program intended to recruit 600 female health workers to provide (1) health education to pregnant women, (2) health screenings and immunizations, and (3) refer high-risk pregnant women to larger facilities to prevent obstetric deaths in Puntland, Somalia.

Community Health Workers Programs in Neighboring Countries

The WHO describes Community Health Workers (CHWs) as “health care providers who live in the community they serve and receive lower levels of formal education and training than professional health care workers such as nurses and doctors.”⁹ The role of CHWs is to provide health services to communities that lack access to healthcare and fill in the gaps to address the disparities within the area being served. The rollout of the CHW-based programs in neighboring East African countries Kenya and Rwanda has seen a huge uptake and success.^{10,11}

In 1995, Rwanda implemented the CHW program to increase the uptake of essential maternal and child health services.⁸ The program initially started off with 12,000 CHWs at the village level providing first-line health services. In 2005, the program expanded to 45,000 CHWs (one maternal health CHW and two multidisciplinary CHWs present in each village) and the Ministry of Health nationalized the program to improve services throughout the country, reaching 100-150 households.¹⁰ By 2010, the Ministry of Health reported a significant increase in assisted deliveries by skilled birth attendants from 39% to 69%.¹⁰ The maternal mortality rate in 2000 was 1,071 deaths per 100,000 live births and dropped down to 487 deaths per 100,000 live births by 2010.¹⁰ Additionally, contraceptive use increased to 45% by 2010.¹⁰ The percentage of children underweight went from 18% to 11% and we can see a similar trend with the percentage of stunted children declining to 44%.¹⁰ The Rwanda Ministry of Health developed a strategic plan for 2013-2018 aimed to “improve delivery services and strengthen CHWs cooperatives through monetary and non-monetary incentives.”¹¹ Rwanda Ministry of Health identified gaps and utilized CHWs to provide community-informed and centered care.¹⁰ These achievements can be attributed to the successful implementation of CHWs throughout the country.¹⁰

Similarly, to Rwanda, Kenya has implemented a CHW program. In 2006, the Kenya Community Health Strategy launched the Community Health Volunteers (CHVs) program to deliver basic health prevention and promotion in geographical areas called Community Health Units (CHUs).¹⁰ Every 10 CHVs served 5,000 people or 1,000 households. By the end of 2019, the program expanded to 86,000 CHVs. The efforts made by Kenya to improve health outcomes resulted in significant improvements in health indicators. Between 2003 to 2014, the mortality rate of children under five declined from 115 to 52 per 1,000 live births.¹² The infant mortality rate dropped from 77 to 39 per 1,000 live births.¹² In 2003, the reported maternal mortality rate was 414 deaths per 100,000 live births and declined to 362 deaths per 100,000 live births in 2014.¹² A study conducted in Busia, Kenya, examining service uptake between 2008 and 2010 found significant improvements in key health indicators.¹³ The implementation of CHWs has greatly increased the uptake of services; data reports reveal increased: antenatal care (from 39% to 62%), deliveries by skilled birth attendants improved (from 31% to 57%), HIV testing during pregnancy (from 73% to 90%), breastfeeding during the first six months of life (from 20% to 52%), and intermittent preventive treatment for malaria during pregnancy (from 23% to 57%).¹³

Programs in Rwanda and Kenya demonstrate the effectiveness and success of the CHW method to decrease maternal mortality rate and increase maternal and child health services uptake. These programs highlight its vital to train and aid CHWs with the end goal of decreasing maternal mortality as well as improving the quality of life for both the mother and infant. When properly implemented and resources are given to the CHWs delivery of services will increase, and health indicators will indicate improving quality of life for communities.

Study Background

The research reported here is part of a larger collaboration between researchers in the University of Washington (UW) Department of Global Health and the Somali Health Board in Seattle, WA, and the Puntland Ministry of Health. The overall research project was designed to identify the strengths and weaknesses of the program to help design an intervention together with the Puntland Ministry of Health to strengthen service delivery.⁸ The project was funded by the University of Washington Population Health Initiative (PHI) for one year to conduct the formative research on Marwo Caafimaad at selected sites in Puntland. The original research design included qualitative in-depth interviews and focus group discussions with mothers, female health workers, providers, and public health leaders in the region. The original project was scheduled to take place in 2020-2021 but because of COVID-19, it was delayed for a year. With the University of Washington COVID-19 and security-related restrictions on travel, local Somali teams in Puntland did the primary data collection with training and guidance provided remotely by the Seattle-based team.⁸ The data collection was completed in Spring 2022.

The project reported here centers on qualitative data collected from mothers and female health workers involved in the program. The aim of this project is to describe the experiences of mothers who received care for health education, antenatal and postnatal care from the Marwo Caafimaad program and to identify barriers and facilitators for the implementation of the program amongst Marwo Caafimaad program workers. Qualitative interviews were conducted through semi-structured focus group discussions (FGDs) with mothers who received care and in-depth interviews (IDIs) with Marwo Caafimaad female health workers who are providing care to the communities throughout the Puntland region in Somalia.

The research project focused on the following research questions:

Drawing from the experiences and perceptions of mothers and female health workers of the Marwo Caafimaad program in Puntland:

1. What do mothers identify as benefits, facilitators, barriers, and challenges when receiving services from Marwo Caafimaad?
2. What do female health workers identify as benefits, facilitators, barriers, and challenges of the Marwo Caafimaad program?
3. What are the differences and commonalities between mothers and female health workers in their experience of the Marwo Caafimaad Program?

Methods

The research questions and aims of the project required open-ended qualitative interviews using semi-structured interview guides to capture the experiences and perceptions of the respondents. The Seattle team conducted remote trainings through Zoom for the Puntland research team due to COVID-19 restrictions.⁸ The Puntland Ministry of Health assembled a research team of four interviewers with previous qualitative research experience to conduct the interviews. The Seattle-based and Puntland-based teams collaboratively developed interview guides and translated into Somali. The research team felt that focus group discussions (FGDs) would be the most appropriate method for interviews with mothers to capture their collective experience in each community of the Marwo Caafimaad program.⁸ In-depth interviews were chosen for female health workers since they were drawn as individuals from different communities with potential variation among individual stories on program implementation.⁸

The overall project was reviewed by the University of Washington IRB and given exempt status.

Site Selection and Sampling

The Puntland Ministry of Health selected villages in Puntland, Somalia based on accessibility and presence of Marwo Caafimaad (see Table 1). Villages Qarxis and Xaaji-Khayr FGDs and IDIs were conducted twice.

Table 1: Qualitative Interviews and Village Locations

Mothers Focus Group Discussions (6 FGDs)	Female Health Workers In-depth Interviews (9 IDIs)
Baarwayn	Baarwayn
Budunbutto	Budunbutto
Libaaxo	Libaaxo
Qarxis (Group 1)	Qarxis (Female health worker 1)
Qarxis (Group 2)	Qarxis (Female health worker 2)
Baqbaq	BaqBaq
	Ceel-buh
	Xaaji- Khayr (Female health worker 1)
	Xaaji- Khayr (Female health worker 2)

Focus Group Recruiting and Interviews

The FGDs were conducted with mothers in each of the sites listed in table 1. Focus group participants were selected by the Puntland research team from local lists of participants who had

participated in the program in the past year. Six FGDs were conducted with mothers that ranged from 5-10 participants at six locations in Puntland: Baarwayn, Bundunbutto, Libaaxo, Qarxis (2), and BaqBaq. The FGDs varied in length based on differences in interviewer styles and all lasted for under an hour.

IDI Recruiting and Interviewing

Female health workers were recruited for interviews in the following way in seven different locations in the Puntland region. Nine IDIs were conducted with female health workers in Baarwayn, Bundunbutto, Libaax, Qarxis, BaqBaq, Ceel-buh, and Xaaji Khayr (see Table 1). All interviews were conducted in Somali by Puntland Ministry of Health research team members who were not known to the participants. The interviews were recorded and interview guides included open-ended questions (see Appendix 2). The IDIs ranged between 11 minutes and 17 seconds to an hour.

Data Analysis

The recordings gathered by the Somali research team in Puntland were uploaded to a shared research drive and were accessed in Seattle, WA. The author is fluent in Somali and carefully listened to audio recordings and took extensive notes in English to capture all responses, as accurately as possible without first transcribing in Somali, given the time limitations. The lead researcher used a thematic analysis (TA) approach to examine the data.¹⁴ The typed notes were analyzed using Dedoose software.¹⁵ An inductive and deductive (key facilitators and barriers based on previous research) coding process was used to generate themes and regularly met with

committee members to discuss the emerging themes commonly found throughout the two stakeholder groups.

Results

Key themes were identified as benefits and barriers to the Marwo Caafimaad program. The mothers provided rich descriptions of the challenges in accessing reproductive health services. This context is essential for understanding and interpreting their discussion of barriers to and benefits of the Marwo Caafimaad program in their communities. Mothers highly value the Marwo Caafimaad program because of its community accessibility. But they also pointed out how critical resource shortages undermine the impact of the program. The female health workers highly value the program but also recognize the challenges created by resource limitations and the need for expanded training.

Mothers Focus Group Findings

Mothers Reproductive Health and Experiences

In the FGDs, mothers shared intimate experiences that describe women's reproductive health care in Puntland. These descriptions helped frame the benefits and barriers of the Marwo Caafimaad program.

Community cohesion: The mothers in the focus group expressed that a strength of their communities is how interconnected they are with one another. This connection is evident, especially when a mother is pregnant, as women in the community will inform the female health

worker on whether she needs support. As these communities are close-knit they rely on each other to solve problems together.

“The mothers who spend a lot of time in labor, who are poor. We help them. We put together funds and take them to a birthing center in a nearby city. We do this because we are all sisters in Islam.” (Libaaxo, Mothers Focus Group)

This quote from a mother also highlights that, as there is no maternal child health center within their own community, they collectively raise funds to take care of the pregnant women.

Environmental constraints: In the focus groups, mothers emphasized how the famine has worsened in Puntland over the years where they are unable to grow produce, get water from the rain, and their livestock do not survive those harsh conditions. Within their community, agricultural challenges have contributed to women experiencing malnutrition while pregnant. Poor road infrastructure hinders access to proper maternal and child health services in clinics and hospitals especially when a woman is in labor. The environment has put constraints on their ability to utilize any services outside their respective community.

“Droughts happened now. The mothers who have given birth and are pregnant, they are in survival mode. They have no water, no meat, they are hungry and malnourished. They do not have access to vegetables. This isn't a city, there aren't farms and gardens. There's no medication, no MCH, no emergency doctors. If a mother bleeds out today, she will die while they are looking for a mode of transportation.” (Baarwayan, Mothers Focus Group)

The mothers shared intimate details of how these environmental constraints led to pregnant mothers passing away.

Family obligations: Many mothers highlighted the important role they play in taking care of their children and the maintenance of their households. While wishing they could attend birthing

centers, they expressed feeling parental guilt for leaving their children and house while at the birthing centers. The mothers prefer to give birth at home ultimately to eliminate the worrying and stress of being away and unable to provide care for their families. While giving birth at home they shared how they were able to be around their children and take care of household duties. A mother in Bundubutto shared how “There are some that do not go to birthing centers because they are worried about their children.”

Financial burden: As mothers stated how environmental constraints restrict them from accessing maternal and child health services, they highlighted that limited finances threaten their day-to-day lives. Pregnant mothers struggle to access essential maternal and child health services due to finances. They expressed how finances dictate their abilities to get groceries and nutrient-rich foods and afford transportation (car rental) to access clinics for vital antenatal care. They reiterated that these resources are vital for a woman to have a healthy pregnancy and safe delivery.

“The people living in Libaaxo are rural people, they are those who escaped drought, and came here to become closer to a well. Typhoons have swept away their livestock. These are not people who have businesses or good resources. Since they are poor, they don't have the capabilities to take the mother to a birthing center. The mother cannot prioritize maternal and fetal care when she has other pending responsibilities. Resources are everything.” (Libaaxo, Mothers Focus Group)

Many of the families that reside in the communities have escaped the drought/famine in Puntland. With limited financial resources maternal and child health services are lesser priorities.

Benefits of Marwo Caafimaad Program

As the FGDs were conducted mothers highlighted four key themes as the benefit of utilizing the Marwo Caafimaad program. These themes spoke to the relationships mothers hold with the female health workers, how they value community-based care, how much gratitude they have for the female health workers, and how the Marwo Caafimaad program model fits the community.

Marwo Caafimaad program fit: One of the benefits of the program is its ability to tap into the communities' cohesion, described above, since female health workers are recruited from the communities they serve. The mothers shared how when there are services being provided such as immunizations and medications mothers will inform each other. They look out for one another when a woman is pregnant they will inform the female health worker as such. Mothers inform and educate one another on the information shared by the female health worker. The Marwo Caafimaad program uses the communities' existing dynamics to monitor and maintain the health of the members.

Grateful for female health workers: Faith is very important to the mothers and they center faith in every decision they make. They shared how they are truly grateful for female health workers and constantly making prayers for them. As resources are scarce they know that they can rely on female health workers. A mother expressed, “Mashallah (God bless) it is. Marwo Caafimaad is someone who can always be found when you need them. Mashallah (God bless) May God give them good.”

Strong relationships with Marwo Caafimaad: Mothers cited strong relationships with female health workers as critical to the mothers utilizing the services and the support they need during medical emergencies. The mothers expressed that when their child falls ill at any point in the day or night the female health workers are there to provide medical assistance. The mothers shared how they need her and she is important to them.

“Marwo Caafimaad is an advisor, who also gives us medicine. She advises us on cleanliness, and you can also find medicine from her. She is like our neighbor. The MCH is far. But Marwo Caafimaad is like your home, that is how she works. We go to her at night, we knock on her door, we tell her we need pain relievers for children. We find whatever it is that we need from her.” (Qarxis, Mothers Focus Group)

“We allow her to go to our homes. She is welcome (when we see her approaching we say) " Marwo Caafimaad is coming, welcome, sit down". She asks us about the girls who are pregnant in our town, we tell her "so and so is pregnant.” (Budunbutto, Mothers Focus Group)

Value of community-based care: As described above distance to health facilities is a major challenge to accessing reproductive health services. The mothers stressed having a health clinic and MCH in their community is very important. As many mothers run the household they are unable to be away from home too long or leave their children. With community-based care, they are able to manage their family obligations and get treated and be seen and taken care of in their home or at the Marwo Caafimaad facilities. Female health workers routinely check in with mothers by doing home visits and referring patients to larger health facilities if need be. The mothers value the convenience and the importance of having community-based care within their community. Two mothers from the focus group discussion highlighted how they value community-based care.

“Marwo Caafimaad is aware about the health of the mother who is giving birth or is pregnant, she goes from house to house. So I believe that this project is the promotion of health for the baby and the mother. A mother is allowed to be home, with her children and benefit from this program, that is an immense benefit.” (Budunbutto, Mothers Focus Group)

“She goes from house to house from the beginning of the day till the end. She goes to seven houses or maybe four. She goes to homes where children are sick, she helps them how she can, or she sends them to another place where they can get help. God bless, we welcome her.” (Libaaxo, Mothers Focus Group)

Barriers to the Impact of the Marwo Caafimaad Program

The mother's FGDs revealed the barriers they are experiencing such as limited health literacy, limited medical resources, and the need for a maternal and child health center in the community. They shared personal accounts of how these barriers have impacted them or the community while making recommendations on how to address these barriers.

Need for maternal and child health center in the community: Mothers expressed that there is a dire need for an MCH center within their respective communities that provide clinical antenatal care, maternity services, and postpartum care. The closest MCH center is either too far or difficult to access due to poor road infrastructures. Mothers revealed when they are making the accommodations to take the mother to the nearest MCH center it may take too long and the mother may bleed out and pass away. They highlighted that an MCH center in their community would prevent harm from perinatal complications that may arise. They wished for the convenience of accessing care without leaving their community and worrying about their family. A mother in Libaaxo expressed how there is a need for an MCH center, “We do not have an MCH. We built a room where mothers can give birth. Whoever gets sick, we do not have a facility for them. We have to take them to another town.”

Limited reproductive health literacy: There is limited uptake of maternal health services available in the community and mothers believe that this may be because there is a gap in knowledge of maternal and postpartum care services as well as the benefits they would receive. Mothers shared that when one mother utilized the services she would share her experience with everyone motivating them to attend and utilize the services. But until those gaps of knowledge are filled they will not be able to access the services. They emphasized the value of knowledge and education, especially health education. They revealed they would want classes to fill these gaps.

Limited medical resources: The mothers shared how there is limited supply of medications and immunizations the female health worker provides what she can. The types of medication they carry only prevent a limited number of illnesses. They expressed the types of medication the female health workers carry need to be expanded in order to treat other illnesses that come into the community. They reiterated that the program needs to be lifted up by increasing medical supplies such as medication especially for mothers and children.

Female Health Worker Findings

The female health workers' IDIs identified key themes that reflected the benefits and barriers of delivery health services within the communities. These perspectives emphasized the need for scaling up the program through recommendations and the role they can play to support these efforts.

Benefits of the Marwo Caafimaad Program

Role in the community: Female health workers play an important role in the community from the relationship they have with community members to how mothers are able to rely on them day and night to get support. They are really important to the community and they understand that by the way they express what the mothers need and the communication built between them. A female health worker expressed,

“The mothers receive benefits like being able to see us if their child is sick, even at night. We learned about care, and whatever we learned, we explained to them. If we tell them that something may not be good for their children, they understand and listen. If we tell them something may be good for their children, they understand. They are people who trust and understand us”

Supervisor support: Female health workers shared how their supervisor's support has been essential while providing care. They have developed regular communication including phone calls and visits with their supervisor. They reflected on how when communicating regularly with their supervisor, they are able to have their administrative daily reporting checked, ask questions, receive guidance in correcting mistakes, and receive needed medical supplies. They emphasized that they have developed a trusting relationship with their supervisor in which they receive the support they need. One female health worker shared, “We receive support from the girl who is our supervisor. Whatever is wrong, she corrects us. She brings us the medications. Whatever we don't know, she tells us. Whatever we are unable to understand, she makes it easier for us. We like her.”

Community support: Female health workers are receiving support from the community with relationships established. They welcome her into the community and they feel comfortable expressing and vocalizing the challenges/barriers they experience. A female health worker shared how the “The community is very good. They are much better than before, and welcome me when they see me.”

Barriers to the Impact of the Marwo Caafimaad Program

The female health workers revealed various barriers that prevent them from providing care and resources.

Needed to expand skills and services: Female health workers revealed that they do as best as they can to provide support to the community they are unable to due to various barriers. They expressed how they want to do more to support the community and they know that the role they play in the community can be an asset to address these barriers. One female health worker expressed, “ We need a lot of change to uplift the town. We need resources for mothers after she gives birth. When the mother is pregnant, we want to be able to deliver the baby. We do not have the equipment for births. There is a lot we need for mothers and birth.”

Limited institutional capacity: Female health workers shared how funding is inadequate, the workforce is limited, lack of supplies and materials, and poor/delayed compensation. The intended capacity of the program is lower than the demand from the community. With these institutional difficulties, it becomes an immense barrier to delivering services.

Funding: Female health workers highlighted they experience funding cut-offs. They have to turn people away because they do not have anything to give. Female health workers expressed Marwo Caafimaad needs to be supported and uplifted to serve the community and the importance of increased funding, but more importantly the consistency of the funding. It is critical so that care is adequate and there are no delays and shortages of medical equipment and supplies. One female health worker shared, "...A lot of the times our funding runs out."

Limited workforce: Female health workers shared how usually there are only 1-2 female health workers conducting home visits, giving out medication and supplies, and providing education. They expressed they take on many tasks and roles that are intended to be done by multiple people. They really emphasized an increase to the workforce. A female health worker expressed how the workforce needs to be increased, "The program should be expanded since our village is big, we need to add a few healthcare workers to help me, in case I go somewhere or get sick."

Lack of supplies and materials: Female health workers revealed frequently medical supplies, medication, and immunizations run out. Female health workers do what is feasible with available resources and often refer patients to surrounding health facilities when unable to provide treatment and care at the Marwo Caafimaad facility. One female health worker shared, "As of now, medication is difficult for us. When they bring the monthly supply of medicine, it might only last seven days."

Poor/delayed compensation: Female health workers reported they are poorly compensated and oftentimes their salary is delayed. This makes it harder for them to support their families and livelihood. Two female health workers expressed,

“We take a small salary of one hundred and twenty dollars, we don't receive anything from anywhere else.” (Female Health Worker)

“We would like a salary increase, and to receive it on a monthly basis.” (Female Health Worker)

Limited training: Female health workers shared they received 3 months of training which they expressed is insufficient for their current role. Female health workers highlighted they have gaps of knowledge due to how long ago they received the training, disclosing that they need refresher trainings on previous training and to increase their training to take on new skills such as birth attendance and postpartum care. A female health worker shared, “We have been trained for 3 months in order to do the work that we do. We need a lot of training, and reminders, because people will forget. We need brain stimulation.”

Discussion

Both mothers and female health workers described the program as extremely valuable to the community but with many challenges and barriers.

Due to the inaccessibility of healthcare facilities outside of the city of Garowe, mothers reported relying on the Marwo Caafimaad program for preventive health services to alleviate the burden of disease, accentuating the importance of community-based care. Commonly, community health workers intentionally work toward filling the gaps in healthcare delivery in low-resource settings

by providing preventive health services, and identifying when patients need referrals for complex care. In rural areas, community health workers are the first point of interaction with the healthcare system. In a patriarchal society, where most family and household duties fall on mothers, access to community-based care is vital to maternal health. During focus group discussions, mothers passionately highlighted their challenging contexts, and the value and potential of the program to fill healthcare gaps, and advocated for the program's expansion with adequate support for female health workers.

Within their close-knit communities, mothers have developed trusted relationships and deep appreciation for female health workers and the Marwo Caafimaad program more generally. They expressed gratitude and made prayers (*duas*) for the female health workers and their meaningful contribution to the community's health and wellbeing. These established relationships and trust between mothers and female health workers facilitate successful program and health service uptake. Moreover, community members shared how faith plays an important role in coping with circumstances that are beyond the Marwo Caafimaad program's control, hence why they turn to Allah (God) to answer their needs. This can be seen through how highly mothers speak of the female health workers. Developing positive and trusting relationships between patient and provider is crucial. Our data supports previous work showing that the success of community health worker programs ultimately depends on the high levels of community involvement and participation.¹⁶

The female health workers expressed how they experienced immense barriers to delivering Marwo Caafimaad services. In addition to their need for additional personnel and adequate

wages, female health workers elaborated on barriers they experience in their day-to-day service delivery at the community level, while simultaneously managing institutional-level responsibilities. The program capacity is limited due to inadequate funding, resulting in facility shortages of the workforce, medical supplies, medicine and immunizations, poor wages, and delayed payments. Oftentimes female health workers do what is feasible with the available resources and refer patients to health facilities to get extensive care. Similarly to the respondents in our study, other settings have stated that they regularly refer patients to surrounding health facilities when unable to provide treatment and care.¹⁶ Despite alarming resources and funding constraints, female health workers provide vital preventive community-based health services. Prior to program launch, female health workers completed a 3-month training to carry out daily program activities. Throughout program implementation, female health workers identified knowledge gaps that revealed training deficiencies and expressed the need for capacity building. Marwo Caafimaad female health workers understand community-based service delivery gaps and recognize the value of their roles and potential for sustainable meaningful health impacts if scaled up. They wish to be part of the decision-making processes and to expand their scope to address mentioned barriers, including training to deliver infants, and administering medications.

Simultaneously, the data highlighted how both mothers and female health workers see a need for in local maternal and child health centers. The mothers shared instances of mothers who have died from complications in pregnancy and delivery. Mothers that live in low-resourced areas have a greater risk for complications or mortality during delivery.¹⁷ At least half of the births in developing countries occur in the absence of skilled birth attendants.¹⁷ While Marwo Caafimaad provides basic preventive health services, mothers expressed that with high-risk complications

and mortality combined with the environmental constraints that limit them from accessing nearby maternal and child health centers, it would be feasible to expand the current facilities to include a maternal and child health center. This would be very convenient for mothers as they value community based care but more importantly would prevent obstetric deaths.

Furthermore, respondents in this study stated that mothers in communities give birth at home when they are unable to travel to a maternal and child health center, which results in adverse perinatal events. In other settings, this challenge has been addressed by placing skilled birth attendants in underserved communities. WHO reports that most maternal deaths are preventable by utilizing skilled birth attendants where they are able to identify and prevent complications that may arise for both newborns and mothers.¹⁸ In Bangladesh, the percentage of women giving birth in a health facility increased from 23 percent to 47 percent between 2010 and 2016 after increasing the availability of community-based skilled birth attendants and community clinics.¹⁹ By 2016, the utilization of community clinics for deliveries increased. Additionally, the proportion of births attended by skilled birth attendants increased from 34 percent to 49.8 percent, accounting for provider-attended clinic births.¹⁹ In Brazil, they reported that the maternal mortality rate was reduced by 60% by establishing a community health worker program that serves about two-thirds of the Brazilian population.²⁰ Antenatal care, delivery by skilled birth attendants, and postpartum care are vital for the health of mothers and babies.

Mothers in our study suggested that the low uptake of maternal health services available in the communities is due to several issues: for some, there is limited knowledge of maternal and postpartum care services and the benefits one would receive if one attends these services. Many

mothers struggle to access antenatal and labor/delivery health services outside of their respective communities. Transportation, inaccessible roads, and poor infrastructure prevent many pregnant women from reaching distant healthcare facilities. The role of women in this society is upheld by traditions and culture. It's fairly common in low-resource settings that many mothers opt to give birth at home over ignoring their household duties and caring for their children.²¹ Providing local perinatal care services may increase the uptake of these services and thus reduce morbidity and mortality via early detection of complications. Training female health workers to become skilled birth attendants may address several barriers to accessing care during delivery.

The female health workers emphasized limited institutional capacity as a key challenge to the Marwo Caafimaad program. The program has inadequate funding, resulting in facility shortages of the workforce, medical supplies, medicine and immunizations, poor wages, and delayed payments. Typically Marwo Caafimaad services are delivered by only 1 or 2 female health workers. Far from meeting the demand for those services, a common concern of both mothers who wish for greater access, and of female health workers who wish to be able to do more to serve. Both groups wish to see the Marwo Caafimaad program scale up in terms of reach, and in scope of practice, to address the needs of their communities.

Recommendations for improvement of the program

- *Increase workforce of female health workers:* Increasing the workforce to hire more than 1-2 female health workers per Marwo Caafimaad site will reduce the strain on the delivery of healthcare services, and enable female health workers to serve more community members.

- *Build maternal and child health centers within Marwo Caafimaad facilities:* Building a maternal and child health center within the community may increase uptake of these services by reducing logistical barriers, the need to leave families behind, and potentially establishing relationships with the community to garner trust in these services.
- *Refresh training for female health workers:* Female health workers need refresher courses of previously gained knowledge, to ensure their information and skills are fresh and updated.
- *Train female health workers to be skilled birth attendants:* Female health workers expressed they would like to become trained to deliver babies in homes. Our formative research showed that many mothers will continue to face barriers to accessing institutional births, and there are no community-based trained skilled birth attendants in these communities now, which is known to increase the risk of maternal and infant complications and mortality. This expansion would equip local providers with the proper tools and skills to manage minimally complicated births and prevent greater complications, lessening the incidence of emergencies that emerge during delivery.
- *Offer community health education sessions:* Mothers shared that they value the knowledge they receive from the female health workers, which can lead to the uptake in services. The mothers noted a significant gap among some mothers who do not use antenatal and postpartum care due to limited knowledge of the benefits they would receive. Additional education from trusted female health workers may increase awareness of services as well as support mothers in decision-making, especially when health emergencies arise.

Limitations

The original project was scheduled to take place during 2020-2021 and COVID-19 delayed it for a year. COVID-19 travel restrictions and the University of Washington travel restrictions the Seattle-based team was unable to do the primary data collection. In order to accommodate these circumstances they trained local Somali teams in Puntland to collect the data with the guidance and supervision of the Seattle-based team. The data analysts were not involved in data collection, and as such, substantial meaning may have been lost in the transition between in-person discussions including body language and unspoken dynamics, and audio-only experience of the discussions. The lead researcher who is fluent in Somali listened closely to all recordings and discussed interpretations with other Somali team members to minimize lost information.

Conclusion

There is strong support from female health workers and the mothers who access their services for the Marwo Caafimaad program to strengthen the current workforce development and retention, and to scale up to include additional workers and scope among the female health workers to address the still enormous health needs locally. Increasing funding, and importantly the consistency of the funding, is critical to limit delays and shortages of medical equipment and supplies. The current system in place does what it can to address the needs of communities but substantial barriers remain for female health workers, with full support of the mothers who see them, expressing that they want to be a larger part of the solution.

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Appendix 1

Mothers Focus Group Interview Guide

1. What was most important to you when you found out you were pregnant?
2. What are your most important concerns about protecting your health while you are pregnant or giving birth, and the health of your baby? What are the strengths in your community that support you as a mother?
3. Could you please describe the Marwo Caafimaad program? Please discuss how the program works in your community.
4. Could you describe how the Marwo program and the community health workers in your community support mothers here? Can you discuss an example of how they have helped you?
5. Could you describe a time when you needed something but they couldn't provide it?
6. How do mothers here perceive the value of antenatal care services at the health facility in your community? Please explain reasons why some mothers do not attend ANC services. Describe in what ways you believe these services are valuable to mothers?
7. Please describe how mothers perceive the maternity services at the health facility.
8. Please explain the reasons why some mothers do not give birth at the maternity. How do mothers decide where to give birth – at home or at a facility or elsewhere?
9. Please discuss how mothers in this community perceive post-partum care services at the health facility. Please explain barriers or reason why some mothers do not attend postpartum care services.
10. Can you describe other services that Marwo CHWs could provide to mothers in your community that would be very helpful to them.

Appendix 2

Marwo Caafimaad Female Health Workers Interview Guide

1. Please describe what you believe to be the most important challenges for maternal health in your village?

2. What are other resources or strengths in the village that support maternal health?
3. In your experience, what are the most important benefits of the Marwo Caafimaad program to you and to women in your community?
4. Please describe the kinds of activities you conduct in the program. Explain what you believe to be the most important and effective activities that you perform.
5. Please describe the greatest challenges you face to implementing the program in your village.
6. Could you please describe your relationship with the health facility that serves your community?
 - How frequently do you have contact with them?
 - Do you frequently refer patients to the health facility?
 - What kinds of support do they provide to you?
 - What kinds of support do you receive from supervisors in the Marwo program?
7. In your experience, please explain how your training prepared you for the work. Describe any additional training you believe is necessary for your work.
8. Please describe any support you receive from other organizations in your community.
9. Please explain how you believe the Marwo program could be modified to improve service in your community.
10. What kind of additional support do you believe is needed for your work in this community?