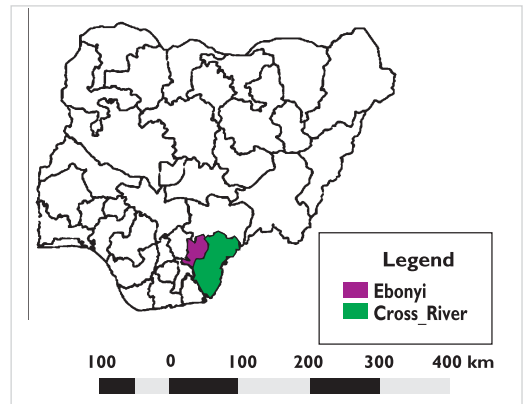


HelloMama: Improving Maternal, Newborn and Child Health (MNCH) using Digital Health Platforms



The Mobile Alliance for Maternal Action (MAMA), a global consortium with public-private funding, delivered vital health information to pregnant women, new mothers and their families through their mobile phones with messages that are specifically designed for behavior change. Through an “ages and stages” model, the messages correspond to what a woman is experiencing in her pregnancy or in her child’s development. With focus on countries where high maternal and newborn mortality rates intersect with an increasing proliferation of mobile phones, MAMA directly supported country programs in Bangladesh, India, and South Africa and in 2015, launched a program in Nigeria, branded as HelloMama.



The HelloMama project operated in Nigeria with the goal to improve the health outcomes and quality of life for pregnant women, newborns, children and their families. The project had the following objectives:

- To establish an operational, nationally scalable platform at adequate coverage that makes age-and stage based mobile messages available to the target population and linked to existing health information systems
- To complement supply side maternal, neonatal, and child health (MNCH) intervention by improving knowledge and adoption of healthy and safe MNCH practices

The project was implemented in Cross River and Ebonyi states, where it leveraged USAID-funded MNCH programs – Saving Mothers Giving Life (SMGL) in Cross River and The Maternal and Child Survival Program (MCSP) in Ebonyi.



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The messages were developed by Baby Center and adapted to the Nigerian context. The messages included recommended antenatal, delivery, postnatal and child care practices.

Pregnant women were registered to receive free HelloMama messages in health facilities by trained health care workers using their mobile phones when they attended antenatal (ANC) services. Those enrolled could elect to receive messages either via short message service (SMS) or interactive voice response (IVR). Recognizing that “gatekeepers” (including husbands, other heads of household, mothers, and mothers-in-law) of pregnant women also have influence on a woman’s maternal and child health care, a set of messages was also developed for this target population. During registration, the woman could elect for their gatekeepers, usually their husband or partner, to receive supplemental messages via voice call. HelloMama messages are available from 10 weeks of pregnancy until the child is one year old. If the mother chooses voice calls, she receives 2 messages per week, if she chooses SMS, she receives 3 messages per week. The gatekeeper receives one voice call per week.

PROJECT ACHIEVEMENTS



Did HelloMama messages improve MNCH knowledge & practice of subscribers?

HelloMama's theory of change is based on evidence that when a woman has appropriate information about her health, her child's health, and available services, then she is more likely to adopt healthy behaviors that will lead to improved health outcomes. A non-randomized controlled study with mixed methods was used to assess the effect of HelloMama in improving MNCH knowledge and practice.

Pregnant women attending first antenatal visits for their current pregnancy in 30 SMGL / MCSP supported health facilities that offered HelloMama services were assigned to the intervention group, while the control group consisted of pregnant women attending their first antenatal visit in 30 SMGL / MCSP supported health facilities that did not offer HelloMama services. The pregnant women from both intervention and control sites were interviewed at baseline. Women in both the control and intervention groups had similar backgrounds and did not show any statistical difference for the following characteristics: age, education level, marital status, ethnic group, religion, employment status, trimester of first ANC visit, number of times ever pregnant, number of children currently alive and ever had a stillbirth or miscarriage. Of the 2359 women who participated at baseline, 2117 (90%) were interviewed again after 9 months of intervention.

Effect of HelloMama messages on MNCH knowledge

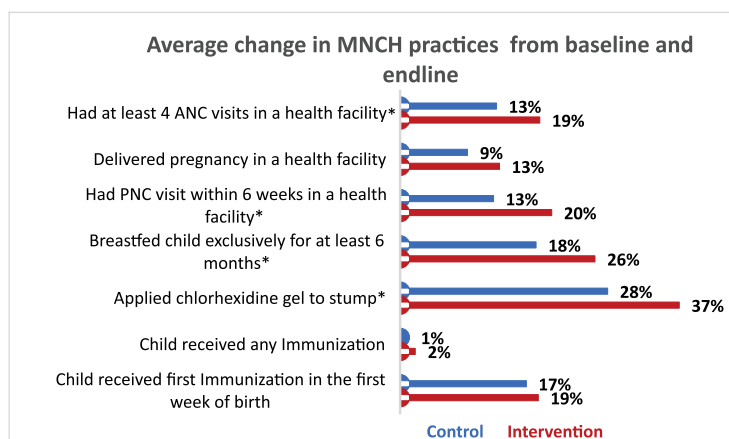
The study assessed the effect of HelloMama messages on women's knowledge about maternal and child health by developing a composite knowledge score that was obtained from 20 MNCH questions. The knowledge score ranged from 20 (highest score) to 1 (lowest score) as it was calculated for each participant by giving score of 1 for 'yes' and a score of 0 for 'no'.

The study showed that at baseline, there was no statistical difference (p-value=0.245) between the mean knowledge score of the intervention (mean±SD=9.73±0.08) and control group (mean±SD=9.60±0.08). However, at end-line, the increase in mean knowledge score among women in the intervention group (mean±SD=12.49±0.09) was statistically significant (p-value<0.001) compared to control group (mean±SD=11.95±0.09). The adjusted (for number of times ever pregnant, number of children given birth to, age, education level, location of facility and ownership of a mobile phone) difference-in-difference also showed that knowledge score was significantly increased by HelloMama messages (95% CI:0.331-0.993, p-value<0.001)

Effect of HelloMama messages on MNCH practices

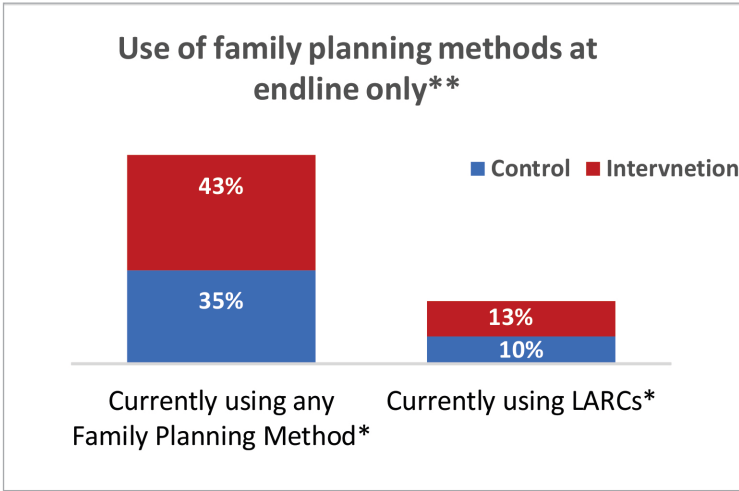
The study showed that at baseline there was no statistical difference between intervention and control groups in their previous experiences of some MNCH behaviors

At end-line, the proportion of pregnant women who had the practices in the intervention group improved more than in the control group. However, the following practices were statistically significantly increased in the intervention group, as compared to the control group: having at least 4 ANC visits (p-value=0.005), having PNC within 6 weeks (p-value=0.015), breastfeeding exclusively for at least 6 months (p-value <0.001) and applying chlorhexidine gel to stump (p-value <0.001) (See figure 1).



* Found to have statistically significant difference between control and intervention at end-line (p-value <0.05)

Figure 1: Change in MNCH practices from baseline and endline



**FP use was only assessed at end-line because women were pregnant at baseline
Figure 2. Use of family planning methods at end-line

Also, those in the intervention group were significantly more likely to be currently using any family planning method (p-value <0.001) and more likely to be using long acting reversible contraceptives (LARCs) (p-value=0.022) at end-line. See figure 2

The adjusted difference-in-difference) showed that the following outcomes were positively and significantly increased by the intervention: having PNC within 6 weeks (95% CI 0.012-0.144, p-value=0.021), breastfeeding exclusively for at least 6 months (95% CI 0.013-0.144, p-value=0.019) and applying chlorhexidine gel to stump (95% CI, 0.038-0.145, p-value<0.001).

Perceived effect of HelloMama

The project also conducted 30 focus group discussions (15 each in Cross River & Ebonyi States) with HelloMama users including husband/partners and in-depth interview with 30 health services providers from HelloMama supported facilities in both states. Below are some of the findings.

HelloMama messages are very educative, made subscribers ask more questions and have discussions on MNCH at the health facility

“The messages are helping us to know what we [did] not know before, and helping us not to spend money unnecessarily on treating diseases.”
 Husband/Partner, Cross River

“They ask more questions during ANC because they come with the text messages well prepared”
 Health Worker, Cross River.



HelloMama was also reported to increase the knowledge of subscribers on danger signs of pregnancy and birth preparedness

“They (HelloMama) told us to get everything ready because of time to delivery, that she would deliver next week, and it happened like that”
 Husband/Partner, Ebonyi.

“HelloMama really help(ed)... I thought swollen feet was a normal thing in pregnancy until when they send one of their messages, saying if your legs were not swollen before and it suddenly swells, it is a danger sign. So, I went to the hospital and they noticed my blood pressure was higher than before”
 Mother, Cross River.



HelloMama increased support of partner/spouse during pregnancy and childcare

"If you were here yesterday, you will find out that some men accompany their wives to health facility, because HelloMama encourages them to do that. Their husbands are very supportive" Health Worker, Cross River.

"When she was pregnant, HelloMama was telling me not to allow my wife to do any hard work... Because of this, I have been helping my wife in different chores" Husband/Partner, Ebonyi.

HelloMama improved visits to health facilities for services like ANC visits, tetanus toxoid vaccination, and immunization services

"What I learned from HelloMama is that if I find out that I am pregnant, that I should go and register for ANC instead of waiting till 6 months as I have always known" Mother Cross River.

"The other one said 'Ma! I never knew I was due for immunization. But HelloMama said I should come for immunization.' I told her, thank God HelloMama has reminded you." Health Worker, Cross River.



HelloMama messages also improved knowledge and practice of exclusive breastfeeding

As I give birth (to previous children), I give them water, but as I gave birth to this one. I said let me try what HelloMama is teaching us that we should not give anything till 6 months and I don't give him water and he does not fall sick. Mother, Cross River

"I discussed with my husband [the message that] said I should not give my baby water but breastfeed... exclusively. They [family members] kicked against it but I had to show them the HelloMama message that the breast milk contains both the food..., the nutrient, the water-[everything] the baby's needs" Mother, Cross River.

HelloMama messages also improved uptake of Family Planning

"You know family planning comes with a lot of negative misconceptions. But now with HelloMama, some of the women choose the method they want during ANC. When they come for delivery, they will say 'Mama Nurse, I want to do family planning, I want to rest a little.'" Health Worker, Cross River.

"There are certain things I was not doing with my wife but since I started receiving these messages from HelloMama I started... for instance these family planning.[Before], I was thinking God say we should go the world and multiply, that was what I was doing, but now I understand that when you space, your child would get time to do other things... I got [learned] that from HelloMama" Husband/Partner, Ebonyi.

"I like HelloMama message because they teach us many things. How to take care of our children, and to do family planning so that we will not have another child when we are breast-feeding." Mother, Cross River.

HelloMama messages provided with information on eating healthy during pregnancy

"HelloMama teach me how to take care of myself [and eat things] like fruits, orange, water-melon, cucumber." Mother, Cross River.

LESSONS LEARNED

- In some facilities, especially high-volume sites, immediate registration was not always feasible, due to challenges like poor network reception, dropped calls, incomplete registration flow and other technical hitches. To address this, paper-based registration booklets were provided which the health workers could fill in with the clients; these forms were then transcribed into the registration platform later when network was better and staff were less busy. However, this approach also presented a challenge of additional work load on the health workers.

There were also network issue, downtimes, re-configurations and frequent service disruptions due to bugs and glitches which affected the frequency of timing of messages received by beneficiaries.

- Despite the high tele-density in Nigeria, many rural women still do not have access to phones and could therefore not be registered for the messages or had to opt to receive the messages on someone else's phone. Exploring community support group structures with downloaded messages in these settings may help to ease the frustration and bring in those without phones into the fold.

- Continuous engagement with the government enhances and strengthens implementation. The program benefitted from senior-level partners at the Ministry of Health and Primary Health Care Development Agency, who advocated for sustained government involvement and commitment to the project. Furthermore, government partnership helped to move forward a national eHealth strategy that undergirds mHealth programs.

- Partnerships and collaboration are key to broaden the horizon for sustainable digital health. Also, a lot of field support and continuous engagement of health workers, technology partners and beneficiaries are required to increase and sustain positive user experience and desired outcomes.



CONSIDERATIONS FOR FUTURE IMPLEMENTATION

The HelloMama service successfully improved MNCH knowledge and services by subscribers. The qualitative study found that the subscribers really liked that the messages were based on the stage of pregnancy and the age of the child, as it made them feel that HelloMama understood what they were going through at that time and this created a trusting relationship between the subscriber and the HelloMama service.

However, a lot of publicity and awareness is required for this type of intervention. In the initial phase, many women were not comfortable giving their details for HelloMama registrations and some husbands were not comfortable with someone calling their wives to tell them about their pregnancy, especially in the early stages.

Several small modifications could help respond to respondents' desires for more options and more information:

- Men were only given the option of voice messages but would prefer to have the option to choose between voice or text. This could lead to better male engagement.
- Subscribers would have liked to be able to communicate with HelloMama to ask questions or seek clarifications. It would therefore be preferable if such messages provide a 2-way communication.
- Gender neutrality is important when referring to the sex of the child as some were not happy when the wrong sex was used when referring to the child in the messages; such modifications made to the message content could lead to higher subscriber satisfaction.
- Some subscribers were not aware of the HelloMama short code and therefore rejected or did not pick the calls, thinking it was spam. Continuous awareness is needed to inform the subscribers of the other services they could receive from HelloMama such as the missed call system and ability to switch to child messages when delivery occurs.






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Evidence To Action Project
1250 Connecticut Ave NW Suite 475
Washington, DC 20037, USA
T: 202-775-1977
www.e2aproject.org
 @E2AProject

Pathfinder International
9 Galen Street, Suite 217
Watertown, MA 02472, USA
T: 617-924-7200
www.pathfinder.org
 @PathfinderInt

Pathfinder International, Nigeria
35, Justice George Sowemimo Street,
Asokoro, Abuja, Nigeria