

ORIGINAL RESEARCH ARTICLE

Building community ownership of maternal and child health interventions in rural Nigeria: A community-based participatory approach

DOI: 10.29063/ajrh2021/v25i3s.5

Lorretta Favour Chizomam Ntoimo^{1,2}, Igboin Brian¹, Chioma Ekwo¹, Sanni Yaya^{3,4}, Wilson Imongan¹, and Friday Ebhodaghe Okonofua^{1,5,6*}

Women's Health and Action Research Centre (WHARC), Benin City, Nigeria¹; Centre Leader, Department of Demography and Social Statistics, Federal University Oye Ekiti, Nigeria²; School of International Development and Global Studies, University of Ottawa, Canada³; The George Institute for Global Health, University of Oxford, Oxford, United Kingdom⁴; Centre of Excellence in Reproductive Health Innovation, University of Benin, Benin City, Nigeria⁵; ³Department of Obstetrics and Gynaecology, University of Benin and University of Benin Teaching Hospital, Nigeria⁶

***For Correspondence:** Email: feokonofua@yahoo.co.uk

Abstract

Although community engagement has been widely reported in the literature, there have been limited reports of this approach in many African countries. We report the methods of community engagement used in an implementation research that was designed to increase women's use of primary health centres for skilled pregnancy and child health care in rural Nigeria. The study was conducted in 20 communities in two Local Government Areas of Edo State in Nigeria. The study used a community-based participatory approach in engaging the project communities through all phases of the project cycle. Some of the activities for achieving community ownership of the project included advocacy activities and engagement with community stakeholders; community conversations; the identification and training of ward development committees; and community sensitization workshops. The project was implemented over three years - November 2017 to October 2020. Key informant interviews conducted at the end of the project reported narratives on key points that were appreciated by community members. These included the recognition given to the community members in decision-making, the elimination of costs through the health insurance scheme, the transparency and accountability embedded in the project implementation, and the absence of adverse maternal and child health outcomes during the project implementation. We conclude that the use of a community-based participatory approach enhanced the attainment of positive outcomes for a project designed to improve the use of skilled pregnancy care in rural Nigeria. (*Afr J Reprod Health* 2021; 25[3s]: 43-54).

Keywords: Maternal mortality, child mortality, community ownership, interventions, skilled pregnancy care

Résumé

Bien que l'engagement communautaire ait été largement rapporté dans la littérature, il y a eu des rapports limités de cette approche dans de nombreux pays africains. Nous rapportons les méthodes d'engagement communautaire utilisées dans la recherche sur la mise en œuvre qui a été conçue pour augmenter l'utilisation par les femmes des centres de santé primaires pour les soins qualifiés de grossesse et de santé infantile dans les zones rurales du Nigéria. L'étude a été menée dans 20 communautés dans deux zones de gouvernement local de l'État d'Edo au Nigeria. L'étude a utilisé une approche participative communautaire pour impliquer les communautés du projet à travers toutes les phases du cycle du projet. Certaines des activités pour parvenir à l'appropriation communautaire du projet comprenaient des activités de plaidoyer et un engagement avec les parties prenantes de la communauté ; conversations communautaires; l'identification et la formation des comités de développement des quartiers ; et des ateliers de sensibilisation communautaire. Le projet a été mis en œuvre sur trois ans - de novembre 2017 à octobre 2020. Les entretiens avec des informateurs clés menés à la fin du projet ont rapporté des récits sur des points clés qui ont été appréciés par les membres de la communauté. Ceux-ci comprenaient la reconnaissance accordée aux membres de la communauté dans la prise de décision, l'élimination des coûts grâce au régime d'assurance maladie, la transparence et la responsabilité intégrées dans la mise en œuvre du projet, et l'absence de résultats négatifs pour la santé maternelle et infantile pendant la mise en œuvre du projet. Nous concluons que l'utilisation d'une approche participative communautaire a amélioré l'obtention de résultats positifs pour un projet conçu pour améliorer l'utilisation de soins de grossesse qualifiés dans les zones rurales du Nigéria. (*Afr J Reprod Health* 2021; 25[3s]: 43-54).

Mots-clés: Mortalité maternelle, mortalité infantile, appropriation communautaire, interventions, soins de grossesse qualifiés

Introduction

Maternal and child survival are essential prerequisites for ensuring the socio-economic development of nations. This is a key rationale for the 2030 sustainable development goal 3 which aims to ensure healthy living and promote the well-being of all. To achieve this goal, the global target for maternal mortality is less than 70 deaths per 100,000 live births and less than 25 per 1000 live births for under-five mortality by 2030¹. It is evident that this milestone will be difficult to achieve if countries such as Nigeria, where maternal and under-five mortalities are still high, fail to make substantial progress in reducing these deaths.

Although efforts made by successive Nigerian governments since the 1990s such as the Safe Motherhood Programme, Midwives Services Scheme, Saving One Million Lives, among others²⁻⁵, have propelled the momentum for change, the number of maternal and child deaths in the country remains one of the highest in the world. In 2015, the World Health Organization estimated that 58,000 women died from maternal causes in Nigeria, which accounted for 19% of global estimates of maternal deaths⁶. In 2019, Nigeria and India accounted for almost a third of all under-five deaths in the world; with an estimated under-five mortality rate of 132 deaths per 1000 live births in Nigeria^{7,8}.

Available evidence indicates that poor access and low utilization of maternal and child health services are critical factors that result in high rates of maternal and child deaths in Nigeria⁹⁻¹². The 2018 Nigeria Demographic and Health Survey indicated that only 67% of women who were pregnant five years before the survey accessed skilled prenatal services, a 7% point increase from 60% reported in 2013, while only 39% accessed skilled delivery care^{7,13} with a wide variation between the urban and rural areas, and various regions of the country. Close to 44% of rural women aged 15-49 years who had a live birth in the five years before the survey did not receive antenatal care from a skilled provider compared to about 16% in the urban areas, and as many as 74% of women in some rural parts of the country were attended at birth by unskilled birth attendants. Low utilization of maternal and child health care services increases the likelihood that pregnancy and delivery complications will result in death. Many studies

have explored the factors associated with the low utilization of skilled maternal and child health care in Nigeria¹⁴⁻¹⁸, but there has been a deficit of substantive interventional research aimed at addressing the problem, particularly through a community-led approach. Many previous studies show that community-led approaches to intervention are more productive and sustainable than strategies that engage communities as mere beneficiaries of interventions¹⁹⁻²¹.

In 2015, the Women's Health and Action Research Centre (WHARC), a foremost Nigerian non-governmental, non-profit organization began the implementation of a project in collaboration with the University of Ottawa, Canada, under the Innovating for Maternal and Child Health in Africa (IMCHA) initiative aimed at understanding the factors which serve as barriers and facilitators to the use of skilled pregnancy care in 20 rural communities in Nigeria. The project included comprehensive formative research, multi-stakeholder discussion of the results, and interactions with the project communities, resulting in the co-design of the interventions with the community stakeholders, constituents, and policymakers. The intervention activities were solely led by community members, which included data-keeping and information dissemination. The results of the intervention were astonishing and showed several folds increases in the use of antenatal, intrapartum, postpartum, and immunization after the intervention as compared to the baseline levels.

We believe strongly that these results are attributable to the ownership of the project and the interventions by the communities, enabling elements of co-funding and sustainability planning by the communities. To the best of our knowledge, this is the first report of a purposefully designed project led and owned by community leadership in any part of Nigeria and has implications for scaling similar practices to other regions. The objective of this paper is to describe how the project was designed and implemented by community stakeholders, resulting in increased access of women to skilled maternal and child healthcare in primary health facilities in rural Nigeria. Specifically, we report how the communities and other stakeholders were engaged to provide solutions that helped to address issues such as

cultural beliefs and practices, gender inequality, social inequity, and ignorance, which had previously been regarded as difficult issues to address in rural communities in the country. Also reported are the perceptions of community stakeholders about the outcome and impact of the intervention activities.

The project

The project goal was to strengthen the availability of, and access to maternal and child primary health care services by rural most-at-risk, and vulnerable women. The specific objectives were to 1) explore why women use or do not use primary health centres (PHCs) for maternal and child health care in two Local Government Areas (LGAs) in Edo State, Nigeria; 2) implement a series of multi-faceted interventions for improving the demand and use of PHCs for skilled care in the LGAs, and 3) test the effectiveness of the interventions in improving women's use of evidence-based primary maternal and child services by comparing maternal and child health (MCH) outcome indicators before and after the interventions.

Methods

The project was a 5-year (December 2015–November 2020) implementation research conducted by the Women's Health and Action Research Centre (WHARC) in collaboration with the University of Ottawa (UOttawa), Canada, and with funding from the International Development Research Centre (IDRC), Global Affairs Canada (GAC), and Canadian Institute for Health Research (CIHR). The grant was provided under the Innovating for Maternal and Child Health in Africa (IMCHA) to identify ways to increase the access of rural women to skilled pregnancy care in PHCs in two LGAs of Edo state in Southern Nigeria: Esan South-East and Etsako East. The West African Health Organization (WAHO) served as the knowledge brokering organization and provided knowledge transfer and research to policy linkage for the project.

The project design was quasi-experimental - separate sample pretest-posttest. It was conducted in three phases. Phase 1 was the baseline which took place between Jan. 2016 – October 2017. Multi-

methods were used to collect formative data on why women do not use primary health care for maternal and child health. The details of the methods and results have been reported elsewhere^{18,22–24}. Phase 2 was the design and implementation of intervention from November 2017 to March 2020 in two randomly selected wards (One per LGA), and 4 PHCs in the 2 wards. The results of the baseline research informed the intervention design. The intervention activities included a community health fund (a form of community health insurance), rapid SMS (Text4Life), drug revolving fund, community health education, memorandum of understanding with transporters, staffing, retooling, and retraining, and advocacy. The details of each activity have been described elsewhere²⁵.

Phase 3 was the post-intervention evaluation from June–July 2020. The evaluation was a comparison of results obtained from a household survey conducted before the intervention (phase 1) and after the intervention (phase 3) among ever-married women age 15–45. Four indicators of maternal and child health services utilization were compared, namely utilization of the project PHCs for antenatal care, delivery, and postnatal care, and childhood immunization. The difference in the outcomes between the two periods was presented as the difference between the percentage at baseline and the percentage at the end survey. We also carried out binary logistic regression to identify the factors that predict access to services while adjusting for confounders and clustering at the community level. The likelihood of using the project PHCs for the four indicator outcomes was over 100% higher after the intervention than at baseline. Details of the evaluation phase, the method, and results are under review elsewhere²⁵. A post-intervention interview was conducted with key informants in the communities.

Study location

The study was conducted in Esan South East and Etsako East Local Government Areas (LGA) in Edo State, southern Nigeria. Both LGAs are located in the rural and riverine areas of the state, adjacent to River Niger, with Etsako East in the northern part of the Edo State part of the river, while Esan South East is in the southern part. Administratively, each LGA comprises 10 political wards, with several

communities existing in each ward. Administratively, Nigeria is made of thirty-six states and a Federal Capital Territory, Abuja. Each State comprises Local Government Areas (LGAs), and each LGA is made up of wards with several communities or villages. Primary health centres are located in the wards, and each ward has at least one PHC. At baseline, twenty communities in 8 wards were randomly selected for the formative research (10 communities per LGA). The intervention activities took place in two wards (one per LGA) which were randomly selected from the 8 baseline wards, and the four PHCs located in the two wards. The post-intervention evaluation took place in these two wards in 20 communities separate from the baseline communities.

Community entry and engagement

Advocacy Strategies

An advocacy team led by the Executive Director of WHARC who was a former Commissioner for Health in Edo State was constituted to engage the project communities and policymakers for support and direct involvement. The primary goal was to sustain the intervention and results through community commitment and ownership. The stakeholders in the project communities, Local and State government were identified, and contacted by the advocacy team. Community-level advocacy began with the engagement of gatekeepers who organized meetings with the traditional rulers and community conversations with elders. Advocacy activities continued all through the project.

Engaging the policymakers

The project was structured to have a Policymaker co-Principal Investigator who was the Executive Secretary of the State Primary Health Care Development Agency. Also, there was a Regional Policy Organisation, the West African Health Organization who acted as a liaison between the Implementation Team and the Federal Ministry of Health. As part of the preliminary activities in phase one, advocacy visits were paid to the various government agencies at the State and Local Government who were in charge of primary health care in Edo State. Finally, an advocacy visit was paid to the Governor of Edo State, where facts about primary health care and the possibilities of

increasing demand for primary health for maternal and child health care were presented. The project goals and strategies were also presented. Necessary advocacy visits and contacts were maintained all through the project life.

Engaging traditional rulers and chiefs

Traditional rulers, their council of chiefs, and elders command high respect and influence in the project communities. We leveraged this to achieve community buy-in, support, and involvement. The advocacy team identified the influential traditional rulers and through the gatekeepers, meetings were scheduled with them. The Principal Investigator (PI), Executive Director of WHARC, the Policymaker Co-PI, and other members of the research team paid an advocacy visit to two traditional rulers who were most influential and controlled the communities where data collection took place. Observing the traditional rites as regards gifts of wine, kola nut, etc., the research team introduced the project by presenting the challenge of maternal and child health to the traditional rulers, and then the project goals. The two traditional rulers, who themselves were knowledgeable about the problems of maternal and child health, pledged their support and buy-in and promised to engage their networks with the Local and State government to make the project a success. Noteworthy is that the traditional rulers were closely followed up on their promises to ensure they did not renege on their support. This was achieved by giving them a continuous sense of belonging and ownership by asking for their input, advice, and action at the different stages of the project.

Community conversations

The meeting with elders age 50 and above was organized in the form of community conversations held in ten strategic communities. The gatekeepers assisted in recruiting the influential elders in the communities. The traditional protocols of engaging elders were observed, the PI and other members of the implementation team who are knowledgeable about traditions of the project communities engaged them in the conversations. The details of these conversations have been published elsewhere²². We asked the community leaders to tell us how the issue of women's access to skilled pregnancy care in primary health centres can be addressed. By guiding

them to come up with specific answers and solutions, the burden was put on them to commit them to lead the solution.

Engaging the Ward Development Committee (WDC)

The WDC is an initiative of the Federal Ministry of Health to oversee the activities of primary health centres in the political/health wards in Nigeria²⁶. We observed that the WDCs in the project LGAs were not fully functional. To build community ownership of the project, we guided them to constitute the Ward Development Committee with members identified by the traditional rulers. All the intervention activities were implemented through Ward Development Committees with the chairmen of the WDCs acting as the main link between the implementing team and the community. The WDC also undertook house-to-house sensitization on the need to use skilled maternal and child care in the project PHCs. The WDC chairmen and selected members received training from the Edo State Ministry of Health on the management of the Drug Revolving Fund (DRF). They were also trained to handle Text4Life (RapidSMS), and community health insurance. To effectively manage the DRF and community health insurance fund, the WDC opened a bank account in the name of the community which was managed by the WDC Chairman and his members. The WDC Chairmen worked closely with the health care providers in the project PHCs and kept a monthly record of the activities in each component of the intervention which they report to the traditional rulers and WHARC.

Engaging the health providers in the project PHCs

The nurses/midwives in the project communities were actively engaged in the three phases. They received several refresher training during the project and participated in all the planning, and implementation meetings in the communities and at WHARC. They were trained with the WDC on how to manage the DRF, community health insurance, and Text4Life. The nurses taught women and their companions how to use Text4Life when they come for antenatal care and other services. They were tasked to keep a record of the project outcome indicators.

Community sensitization workshops

Community sensitization workshops were organized in the project communities to build community awareness about the project, and to raise consciousness about the need for women to use the existing PHCs for pregnancy and child health care. These workshops were held every 3 months throughout the project lifecycle. It brought all community stakeholders together to a central location within the village (the village square), where presentations were made by key persons on project methods, processes, and expected outcomes. The participants included all community chiefs led by the village heads (kings), community elders, women leaders, pregnant women and their families, policymakers, and CSOs working in the communities. More affluent community members who lived in cities were invited from various parts of the country to participate in the workshops, with the explanation that this provided them the opportunity to contribute to the growth, development, and social well-being of their communities. During the workshops, the WDC members provided narrative and financial reports related to the project activities and also used the opportunity to canvass for more support for the project. Consequently, the workshops were used to raise additional funds from donations made by participants which helped to support the project activities.

Evaluation of community participation and leadership

At the close of the project, we conducted key informant interviews with selected members of the project communities – the two traditional rulers, the two Chairmen of the WDCs, six members of the WDCs, nurses/midwives in the project PHCs, six pregnant and recently delivered women and five men (husbands of recently delivered or currently pregnant women). The interviews were unstructured questions designed to determine how the community constituents felt about the project and its methods in comparison to what they were used to and to identify the lessons they learned. The answers they provided were audiotaped and analyzed qualitatively by themes – especially to enable us to identify elements that can be used to guide similar interventions.

Results

Engaging traditional stakeholders - The process and support

The community stakeholders (traditional rulers and WDC Chairmen) provided an elaborate description of the project, how and why they supported it, and the benefits to the communities.

Well, in our community here we are very far from the hospital [secondary hospital], the nearest hospital to this place is about 40km if not more than so we have suffered lack of proper medical service for a long time. It happened that at the time WHARC came to us a woman had a quadruplet birth in our community, the woman almost lost her life and none of the children survived. So, at the time WHARC program came, it was just at the right time and when His Royal Highness [Traditional Ruler] heard of the program, he supported it. So when they came they used a lot of money in revamping the health facility, providing essential drugs for pregnant women, and even created a health insurance scheme where women contribute very little but enjoy the benefits of all service before and after they deliver. Since WHARC came, we have noticed a great change in women's attitude in attending the health centre (WDC Chairman 2).

They came in here; when they came it was a surprise. They came here to help us take care of the women. They said that they don't want the women to lose their babies, and they don't also want their husband to lose their wives. So, when I look at it they came with some Professors and Doctors that explained it better. So now I know that they came here for a serious thing and they want to take care of my community. What they did is that all that we complained about they took care of them. So, after a few days, they ask me to provide the Chairman [WDC] and I did. They came back and told me they went to the clinic and saw the nasty bed they were using. They went back home and provided all the drugs and beds for the maternity, then I now discovered that they were not playing that they are very serious, ... They asked the women to

register with the maternity with one hundred Naira per month which is insurance. You know when you come to the rural area and talk about money, the people will shift back but when they saw the good things coming from it they will all accept it. So far so good I am happy with the project that WHARC has done for the community (Traditional Ruler 1).

Interviewer: Thank you, Sir, when they discovered the challenges you were having, then, they brought the strategies to solve the problems, what other thing motivated you to support them.

Well, I am somebody who understands a bit about health. I am always interested in anything health because some of our women die ignorantly during pregnancy and also while giving birth; even the men too. Since a Professor can come to me and also a Commissioner for Health. And then one thing I forgot to say, and then when they came there was a problem getting a good nurse who can handle issues here in our maternity. Back then, the government told us if we don't vote for them they will not give us anything. So the people [WHARC] said no that we must get a good nurse here, so they went to Benin themselves and got a good nurse for us ...and told us that more nurses are still going to come. That is what attracted us (Traditional Ruler 1)

In addition to the benefits of the health insurance and drug revolving fund which made drugs available and affordable to the women, the project brought the communities closer to the Local Government Authorities. The WDC Chairmen and their members became more actively involved in PHC supervision and care for women and their infants, and the PHC providers became more efficient in service provision.

It has also made us closer to the Local Government. I frequently call the Coordinator of the health centre, that is the doctor in charge of the Local Government at the LGA headquarter. For example, when the last NYSC [National Youth Service Corps] the doctor finished I called him and reported to him that we don't have a doctor if he can help us to get

one because of the importance of the doctor at the health centre. The presence of a doctor encourages women to go to the health centre. Secondly, since WHARC started the program, there has been no laxity there at the health centre; they know I will visit them every time to know what is going on especially on antenatal clinic days and when a woman delivers, I go there to see the woman and see the baby. I even visit newly born women in the house to see how they are doing and encourage them to take their baby back for immunisation. So, it has come to bring awareness, especially to our childbearing women to go to the health centre when they are not well in the first place when it is time for immunisation and every other thing the health centre offers. So, we have achieved more from this program from WHARC. We run a transport system; we have 4 registered drivers in our program. In a situation when a woman is in distress and needs immediate help, we call on the drivers to bring the woman down to the health centre at any time of the day (WDC Chairman 2)

Community voices about the success of the project

The community members and the health providers in the PHCs were of the opinion that the attitude of women and their husbands towards the use of the projects PHCs for maternal and child care, and actual utilization improved during the intervention.

Yes, it has improved, with the record the Chairman [WDC] is giving me it has improved...(Traditional Ruler 2)

For me, I don't [use traditional birth attendants] and my friends, we all go to health center, I don't think that is common anymore, we go to the hospital, especially now ... you fill that form [Health Insurance Form] everything is now easy, and it is helping us, so many people go to the hospital (Female Beneficiary)

The program is very good; it helps the poor, not only the poor that benefited from it but the community as a whole. Women benefited from it, especially women of childbearing age. It is something that I have never seen before. A

person will just come, who is not from this community, to do such a thing. I appreciate their efforts (PHC Nurse 1).

Responding to improvement in utilization of the PHC, she continued:

The rate of use has increased. Initially, when I came into this place, pregnant women were not coming to the clinic, until WHARC came, everybody was like free this, free discharge so it really helped us. All the women in this place used to go to nearby village birth attendants. With the help of WHARC women have been patronizing the health center very well (PHC Nurse 1)

A lot of differences are there because, before the intervention of WHARC, the health centre was no longer patronized, because this is a rural community, the issues of finance are very serious. So, when the WHARC project came in that you register with one thousand five hundred and at the end of the day they pay your delivery fee of about four thousand three hundred, later it was changed to five thousand. People started coming even from different communities, they all come to the PHC. Though some cannot still afford the little monthly payment for health insurance, if you look at the registration before the intervention the turnout was low, but today we are recording more numbers. And the women and the children are very appreciative of WHARC (WDC Chairman 1).

Interviewer: So, you will say the IMCHA project was a success

Seriously one hundred plus success (WDC Chairman 1)

Interviewer: So, you can say that the WHARC IMCHA project was a success

Yes it is right for inception we have delivered over 200 women successfully without death and all their records are with me including all the money we have spent. (WDC Chairman 2)

Before WHARC program started in the community, people were not utilizing the health

centre. I didn't get up to 2 deliveries per month; meanwhile, women were using the TBAs for antenatal and delivery care. The health centre was not fully equipped, we lacked drugs and other essential equipment needed to provide service. We also had cases of women who died in the process of delivery and women who lost their babies at birth. But when WHARC intervention started in 2017, they helped us to equip the PHC, provided essential maternity drugs and delivery kits. WHARC trained me and other health workers within the local government on providing essential maternity services to rural women. I must say that I am grateful to WHARC and because all the things they put in place in the health facility and the community increased the turnout of women utilizing the health centre. I now have many women registering for ANC, more delivery, postnatal care, and immunisation. The children also utilise the health centre for other medical care. Our community leader His Royal Highness and Chiefs were also key players in the program. I am grateful to WHARC and I can assure you no woman or baby will die in this community again. I commend WHARC and I hope they continue to support the program and also scale it up to other health centres in Nigeria (PHC Nurse 2)

Beneficiaries became campaign agents

The PHCs in the project communities were highly underutilized before the IMCHA project. According to the participants, the intervention increased utilization because women who benefited from the intervention became campaign agents for the project in their communities.

Then the women were now campaigning in each of the villages because we have about 20 villages. (Traditional Ruler 1).

Discussion

The primary objective of this paper is to report how communities in rural Nigeria were engaged through community-based participatory research in leading intervention for increasing women's use of skilled pregnancy and child health care, and the perceptions

of community stakeholders about the outcome and impact of the intervention activities. The results from interviews conducted with women and key community members indicate that they appreciated the conduct of the interventions, the methods used in mobilizing the community members, and the specific results obtained. In several previous publications, we have reported some of the methods and results of both the formative research that led to the design of the intervention as well as the methods of the interventions^{18,22–25,27}. As earlier reported, the multifaceted interventions that addressed the bottlenecks that prevented women from using skilled pregnancy care were effective in increasing women's use of PHC for antenatal, delivery, and postnatal care by nearly four-folds, and childhood immunization by three-times²⁵ based on assessments carried out at baseline and the end of the intervention.

From the interviews conducted with community stakeholders reported in this paper, it is evident that several factors accounted for the success of the project which was appreciated by the community members. These include the direct engagement with community chiefs and leaders, the coordination of the project by WDCs rather than by the external experts, the transparency demonstrated through the handling of the project funds and key records by community members. Other factors were the provision of free medical services through the health insurance fund managed by the communities themselves, the improvement of facilities in the PHCs, the drug revolving fund managed by the communities that made drugs easily available in the health centres, the increase in the number of doctors, nurses and midwives working in the PHCs due to the intervention, the re-training of the health providers in the PHCs, and the provision of regular health information to all community members. In particular, the WDCs members who are known within the communities were trained to provide information on maternal and child health to pregnant women in the communities on a house to house basis. They ensured that all pregnant women are registered with them and that they attended antenatal, delivery, and postnatal clinics, and they also followed up with the women after delivery to ensure that the babies are fully immunized in the PHCs.

The key factors that led to the success of the intervention and its appreciation by the community members can be summarized as follows: 1) participatory community engagement right from the beginning of the project and throughout the project cycle; 2) the ownership and direct supervision of the project activities by community members; 3) the involvement of multi-stakeholders including policymakers, technical experts, and civil society organizations; and 4) the use of bottom to the top decision-making process, rather than one based on top to the bottom transfer of knowledge which is not informed by knowledge and cultural preference of the local communities. In particular, the project demonstrated transparency and accountability in its execution which were appreciated by the community, and which values were inculcated for recycling and promoting the project objectives.

To the best of our knowledge, this is one of a few interventions purposefully led by communities for building capacity for addressing a community health challenge in sub-Saharan Africa. The study utilized the principles of community-based participatory research which have been described by Madeline Shalwitz and colleagues²⁸ as “involving people affected by a problem in developing solutions through collaborative research, planned action, along with process and outcome evaluation”. Every step of the research process was co-designed by community members, technical experts, and policymakers. The role of the technical experts was mainly to ensure compliance of the methods and processes with scientific norms, rather than to drive a specific outsider agenda.

The study also ensured conformity with the core principles of community-based participatory research described by Israel *et al*²⁹, and Jones and Wells³⁰ as follows 1) it used a participatory and engaging approach; 2) it was cooperatively designed with equitable and collaborative partnership; 3) it included a co-learning process and mutual exchange of expertise between community members and technical experts; 4) there was demonstrated commitment by all partners; 5) the research was built on using community strengths, which meant that it leveraged on existing strengths and the comparative advantages of communities; 6) the project further empowered the communities to know their unexplored strengths; 7) the study

entailed the delivery of intervention activities that were identified from initial research, and 8) it identified the communities as social and independent entities.

Policy implications of lessons learned

We believe that the community-led approach will be useful in scaling up and sustaining the use and adoption of PHCs for skilled pregnancy care, especially in rural and suburban parts of the country in four main ways. First, the provision of PHCs is not sufficient. Governments and policymakers should investigate community concerns and preferences in the design and management of the PHCs in ways that are acceptable to communities. Some of the concerns raised in this study such as cost of services, adequacy of health providers, and availability of drugs and essential commodities should be addressed to ensure the use of the facilities, as well as others that may feature informative community-based participatory research. Second, the communities should be engaged in co-owning and managing the health facilities as demonstrated in this research. This will not only ensure the effective delivery of the outcomes of the health facilities, but it will also engender the sustainable use of the health facilities over time.

The WDC concept used in this project is similar to CHIPS (Community Health Influencers, Promoters, and Services Programme) that was introduced into Nigeria by the National Primary Health Care Development Agency (NPHCDA) in 2018³¹. Our study started in 2015 before the commencement of CHIPS. The results of this study suggest that CHIPS would be highly effective if carried out in rural communities across the country. A third perspective to use of the community participatory approach is the need to address the desires of communities in specific terms. In this project, not only did we understand that cost of services was a barrier to the use of services, we designed an intervention through a health insurance scheme that addressed this challenge. Thus, the offering of what the communities came out to understand as free maternity care turned out to be one of the most effective and the most appreciated part of the intervention. Nonetheless, despite the available community health insurance and fund-

raising, interviews with community stakeholders indicated that the cost of services was still a barrier to service utilization. This can be linked to the high level of poverty in the country, especially in rural areas. We, therefore, recommend a policy of free antenatal, delivery, postpartum, and childcare services in PHCs to improve women's use of these services, as has been done in other settings^{32–34}. By introducing free maternal and child health services in PHCs, it will reduce the current propensity for women to use secondary and tertiary health care facilities and untested traditional birth attendants for maternity care, and thereby improve referral facilities and the quality of maternal health care at all levels.

Finally, this research has enabled us to learn the most important steps in community engagement through a systematic action learning process. We obtained the support of key decision-making processes in the communities, by first recognising the most important community leaders, and then working with them to identify members of the WDCs, who then worked and reported to the community leaders in Council. The identification of the WDCs by community leaders enabled the selection of the most trusted and reliable persons in the community to guide the process. Trust, integrity, and accountability then became the most important elements that underpinned the project delivery and that ensured the active participation of all stakeholders in the community. Even after the study ended, these elements of the project ensured the continuation and sustainable delivery of all activities related to the project.

Ethical considerations

Ethical approval for the study was obtained from the National Health Research Ethics Committee (NHREC) of Nigeria – protocol number NHREC/01/01/2007 – 10/04/2017. The communities were contacted through lead contact persons, and permission to undertake the study was obtained from the Heads (Odionwere) of the communities. Consent was also obtained from the Heads of individual Households identified for the study, individual men, and women. The participating women were informed of the purpose of the study, and individual written informed consent was obtained from them to conduct the

study. They were assured of the confidentiality of information obtained, and that such information would only be used for the study and not for other purposes. No names or specific contact information were obtained from the study participants. Only women that agreed to participate in the fully explained study were enlisted in the study.

Conclusion

We conclude that the use of a community-based participatory research approach enhanced the effectiveness and promoted the attainment of positive outcomes for a project designed to improve the use of skilled pregnancy care in rural Nigeria. The widespread use and scaling of this approach have the potential to increase and scale the use of PHCs for skilled pregnancy care in rural Nigeria, and similar contexts in other parts of the world.

Acknowledgments

We acknowledge the traditional rulers in Ewatto and Okpekpe Wards, and WDC Chairmen and their members, and the nurses in the PHCs in Esan South East and Etsako East LGA for their support and contributions to the success of the project. We also acknowledge the support from the Edo State Government, Esan southeast and Etsako East Local Governments, Edo State Primary Health Care Development Agency, the Federal Ministry of Health, and WAHO for their strong support all through the project. We are grateful to all the data collectors and supervisors both at baseline and end line.

Funding

This work was carried out with a grant from the Innovating for Maternal and Child Health in Africa initiative, co-funded by Foreign Affairs, Trade and Development Canada (DFATD), the Canadian Institutes of Health Research (CIHR) and Canada's International Development Research Centre (IDRC).

The views expressed herein do not necessarily represent those of IDRC or its Board of Governors.

References

1. World Health Organization. *World Health Statistics 2016: Monitoring Health for the SDGs, Sustainable Development Goals*. World Health Organization; 2016.

2. Abimbola S, Okoli U, Olubajo O, Abdullahi MJ and Pate MA. The midwives service scheme in Nigeria. *PLoS Med.* 2012;9(5):e1001211.
3. Bankole A, Sedgh G, Okonofua F, Imarhiagbe C, Hussain R and Wulf D. Barriers to safe motherhood in Nigeria. *New York: Guttmacher Institute.* 2009;17.
4. Ogunlela Y. An Assessment of Safe Motherhood Initiative in Nigeria and the Achievement of the Millennium Development Goal Number 5. *The Social Sciences.* 2012;7(3):353-360.
5. WHO. Nigeria launches “Saving One Million Lives” by 2015 initiative. Published 2012. <https://www.who.int/workforcealliance/media/news/2012/1mlives/en/>
6. World Health Organization. *Trends in Maternal Mortality: 1990 to 2015. Estimates by WHO, UNICEF, UNFPA, The World Bank and the United Nations Population Division.* World Health Organization; 2015.
7. National Population Commission (NPC) [Nigeria] and ICF. *Nigeria Demographic and Health Survey 2018.* NPC and ICF; 2019.
8. The United Nations Inter-agency Group for Child Mortality Estimation (UN IGME). *Levels & Trends in Child Mortality.* UNICEF; 2020.
9. Ariyo O, Ozodiegwu ID and Doctor HV. The influence of the social and cultural environment on maternal mortality in Nigeria: evidence from the 2013 demographic and health survey. *PloS one.* 2017;12(12).
10. Yar’zever SI. Temporal analysis of maternal mortality in Kano State, northern Nigeria: A six-year review. *American Journal of Public Health Research.* 2014;2(2):62-67.
11. Kayode GA, Adekanmbi VT and Uthman OA. Risk factors and a predictive model for under-five mortality in Nigeria: evidence from Nigeria demographic and health survey. *BMC Pregnancy & Childbirth.* 2012;12(1):10-20. doi:10.1186/1471-2393-12-10
12. Ntoimo LF, Okonofua FE, Ogu RN, Galadanci HS, Gana M, Okike ON, Agholor KN, Abdus-Salam RA, Durodola A and Abe E. Prevalence and risk factors for maternal mortality in referral hospitals in Nigeria: a multicenter study. *International journal of women’s health.* 2018;10:69.
13. NPC, ICF International. *Nigeria Demographic and Health Survey 2013.* National Population Commission, Nigeria and ICF International; 2014.
14. Ononokpono DN, Odimegwu C, Imasiku ENS and Adedini SA. Contextual determinants of maternal health care service utilization in Nigeria. *Women & Health.* 2013;53(7):647-668. doi:10.1080/03630242.2013.826319
15. Dahiru T and Oche OM. Determinants of antenatal care, institutional delivery and postnatal care services utilization in Nigeria. *Pan African Medical Journal.* 2015;21:321-337. doi:10.11604/pamj.2015.21.321.6527.20
16. Dairo M and Owoyokun K. Factors affecting the utilization of antenatal care services in Ibadan, Nigeria. *Benin Journal of Postgraduate Medicine.* 2010;12(1):3-13.
17. Ntoimo LFC and Odusina EK. Family Structure, Women Autonomy and Utilization of Maternal Healthcare Services in Nigeria. In: *Ezeibunwa Nwokocha & Olufunke Fayehun (Eds) Concise Demography of Nigeria: A Festschrift for Prof Uche Isiugo-Abanihe.* BumbleBee Publishing; 2019:124-143.
18. Okonofua FE, Ntoimo LFC, Ogungbangbe J, Anjorin S, Imongan W and Yaya S. Predictors of Women’s Utilization of Primary Health Care for Skilled Pregnancy Care in Rural Nigeria. *BMC Pregnancy and Childbirth.* 2018;18:106. doi:doi.org/10.1186/s12884-018-1730-4
19. Adam MB, Dillmann M, Chen M, Mbugua S, Ndung’u J, Mumbi P, Waweru E, and Maissner P. Improving maternal and newborn health: effectiveness of a community health worker program in rural Kenya. *PloS one.* 2014;9(8):e104027.
20. Anderson E, Shepherd M and Salisbury C. ‘Taking off the suit’: engaging the community in primary health care decision-making. *Health Expectations.* 2006;9(1):70-80.
21. Brazier E, Andrzejewski C, Perkins ME, Themmen EM, Knight RJ and Bassane B. Improving poor women’s access to maternity care: Findings from a primary care intervention in Burkina Faso. *Social science & medicine.* 2009;69(5):682-690.
22. Fantaye AW, Okonofua F, Ntoimo L and Yaya S. A qualitative study of community elders’ perceptions about the underutilization of formal maternal care and maternal death in rural Nigeria. *Reproductive health.* 2019;16(1):1-17.
23. Ntoimo LFC, Okonofua FE, Igboin B, Ekwo C, Imongan W and Yaya S. Why rural women do not use primary health centres for pregnancy care: evidence from a qualitative study in Nigeria. *BMC Pregnancy and Childbirth.* 2019;19(1):1-13. doi:10.1186/s12884-019-2433-1
24. Yaya S, Okonofua F, Ntoimo L, Udenigwe O and Bishwajit G. Men’s perception of barriers to women’s use and access of skilled pregnancy care in rural Nigeria: a qualitative study. *Reproductive health.* 2019;16(1):86. doi:10.1186/s12978-019-0752-3
25. Okonofua FE, Ntoimo LF, Yaya S, Igboin B, Solanke O, Ekwo C, Johnson E, Sombie I and Imongan W.. Effect of a Multifaceted Intervention on Utilization of Primary Health Care for Maternal and Child Health Care in Rural Nigeria: A quasi-experimental study. *BMJ Open (in review).*
26. Azuh DE. The Role and Challenges of Ward Development Committees in Promoting Grassroots Health Awareness in Ogun State Nigeria. *Journal of Business and Management.* 2017;19(7):41-48.
27. Yaya S, Okonofua F, Ntoimo L, Udenigwe O and Bishwajit G. Gender inequity as a barrier to women’s access to skilled pregnancy care in rural Nigeria: a qualitative study. *International Health.* 2019;11(6):551-560.

28. Shalowitz MU, Isacco A, Barquin N, Clark-Kauffman E, Delger P, Nelson D, Quinn A and Wagenaar. Community-based participatory research: a review of the literature with strategies for community engagement. *Journal of Developmental & Behavioral Pediatrics*. 2009;30(4):350-361.
29. Israel BA, Schulz AJ, Parker EA and Becker AB. Review of community-based research: assessing partnership approaches to improve public health. *Annual review of public health*. 1998;19(1):173-202.
30. Jones L and Wells K. Strategies for academic and clinician engagement in community-participatory partnered research. *Jama*. 2007;297(4):407-410.
31. National Primary Health Care Development Agency. Community Health Influencers, Promoters, and Services Programme. Accessed October 4, 2020. nphcda.gov.ng/special_programme
32. Okonofua F, Lambo E, Okeibunor J and Agholor K. Advocacy for free maternal and child health care in Nigeria—results and outcomes. *Health policy*. 2011;99(2):131-138.
33. Gitobu CM, Gichangi PB and Mwanda WO. Satisfaction with Delivery Services Offered under the Free Maternal Healthcare Policy in Kenyan Public Health Facilities. *Journal of Environmental and Public Health*. 2018;2018:e4902864. doi:10.1155/2018/4902864
34. Witter S, Adjei S, Armar-Klemesu M and Graham W. Providing free maternal health care: ten lessons from an evaluation of the national delivery exemption policy in Ghana. *Global Health Action*. 2009;2(1):1881. doi:10.3402/gha.v2i0.1881.