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Obstetric Fistula Prevention Program in Gombe State, Nigeria

A proposal to Law Makers

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GLOBAL MATERNAL AND CHILD HEALTH

Background

Obstetric fistula is an abnormal hole that develops either between the vagina and the rectum (rectovaginal fistula), or between the vagina and the bladder (vesicovaginal fistula).[1] Both types of fistulas occur because of prolonged, obstructed labor without timely medical intervention (for example a caesarean section). During unassisted, prolonged, and obstructed labor, the sustained pressure of the baby's head on the mother's pelvic bone damages soft tissues, creating a hole-or fistula-between the vagina and the bladder and/or rectum.[1] An obstetric fistula leaves a woman incontinent of urine or feces or both.[2]

Obstetric fistulas (OFs) are rare in developed countries, but common in developing countries.[3] For instance, South Asia and Sub-Saharan Africa regions of the world are responsible for the 2 million women living with an OF globally. Approximately half (1 million) of these women, reside in Nigeria.[4] The prevalence of obstetric fistula in Nigeria is 3.2 per 1000 childbirth, with approximately 13,000 new cases annually, and a backlog of over 400,000 OF cases in need of repair.[5]

Prolonged obstructed labor is the direct leading cause of OFs, accounting for up to 95% of the cases in Nigeria.[6] However, there are other indirect factors related to the high incidence of obstetric fistula in Nigeria.[5] These indirect factors include socioeconomic and cultural issues, and limited access to quality healthcare services (Fig. 1). For instance, socioeconomic and cultural factors associated with high risk of developing an OF include poverty, malnutrition, no formal education, limited decision-making roles, early marriage, and childbearing at a young age.[5] In addition to the aforementioned factors, delay in accessing quality healthcare in the case of obstructed labor increases the risk of developing an OF.[5]

An OF affects the women and her immediate community. The effect of an OF on the health and wellbeing of the women is in two folds. First, more than 78% of women with an OF usually do not have a live baby. [7] This suggests that these women have to live with the physical disability and the psychological distress of losing a baby at birth.[7] Second, these women usually experience family and community stigmatization, isolation, loss of social support, divorce/separation for married women, worsening of poverty, worsening of malnutrition, depression, which can all culminate into pre-mature death.[7] The effect of an OF on the woman's family and community is related to the woman's disability and possible premature death from an OF. Women who develop an OF are usually within their reproductive and productive years. When these women are ostracized from their communities, or they die prematurely, their social (as mothers, wives, daughters, and companions), and economic roles are either threatened or eliminated.[7]

The direct costs of an OF can be assessed through the cost of a fistula surgery repair ($500 per surgery per woman), which is usually too expensive for most Nigerians (75% live under less than $1/day) to finance out-of-pocket.[8] However, the government is financing fistula repair in the 18 fistula centers in the country.[6] These centers repair approximately 3000 fistulas (@$500 per women) annually.[6] This implies that the Nigerian government is spending an average of $1.5 million yearly on fistula repair. Unfortunately, this yearly financial expenditure is still not solving the problem, because the rate of repairs is moving at a glacial pace (3000 fistula repairs per year) compared to the amount (13,000) of new OF

cases yearly. The current rate of fistula repair implies that it will take about 83 years to clear the over 400,000 women that are awaiting fistula repair.[6]

The multifaced adverse effects of obstetric Fistula (OF) on the women, their communities and the country at large, qualifies OF as a major public health problem in Nigeria.[5] Unfortunately, there are currently no proactive OF prevention programs implemented in the country to address the indirect factors associated with the development of an OF.[5] Therefore, we as Nigerian legislators are proposing to pilot an Obstetric Fistula Prevention (OFP) Program in Gombe State, Nigeria.

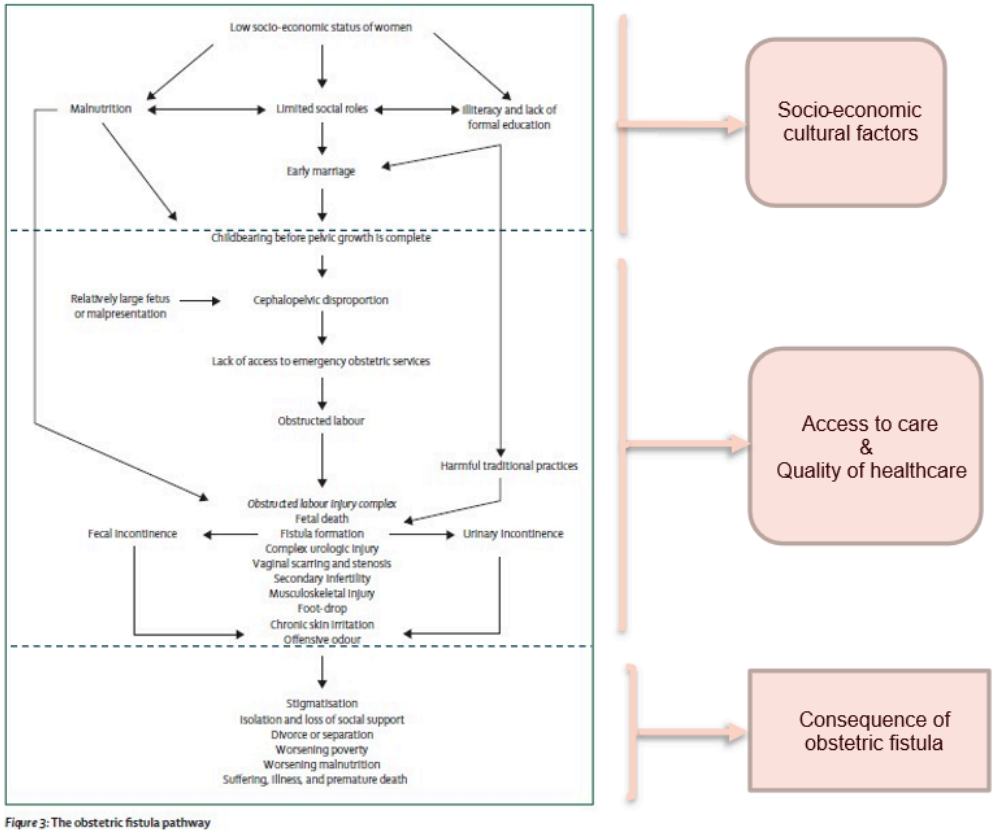

Figure 3: The obstetric fistula pathway

Figure 1: The obstetric fistula pathway

Gombe State is mostly rural (70%), with a population approximately 3.9 million (2022 estimate),[9] and 136,000 births yearly, with approximately 808 cases of obstructed labor.[10] Most residents (72.2%) live under USD1/day and literacy rates are 37.5% and 47.5% among females and males respectively.[11] The three common occupations are farming, cattle-herdsmen-ship, and trading.[11] Gombe state has 605 health facilities that offer maternal child health (MCH) services across 11 Local Government Areas (LGAs).[11] We will implement our program in half geography of the state: among 5 LGAs, with 300 MCH facilities that serve approximately 2 million people to accommodate for 68,000 births, and 404 obstructed labor cases yearly.

Our strategy is in line with the first aim of the "*National Strategic Framework for the Elimination of Obstetric Fistula in Nigeria 2019 – 2023*". The strategy's three aims include:

1. **To promote the reduction of the incidence of Obstetric Fistula by 30%**
2. To reduce the backlog of untreated Obstetric Fistula cases by 30%
3. To promote and facilitate the rehabilitation and reintegration of 30% of needy treated fistula patients into their communities

We hope to contribute to aim 1 of the strategy by giving the Gombe State Government Health Agency (GSGHA) the mandate and resources to implement an Obstetric Fistula Prevention (OFP) program. The program was adopted from a maternal neonatal health (MNH) program that was successful in improving the use of maternal child health services for childbirth from 27% to 65% within 24 months in the state.[12]

Table 1: Comparison of the OFP Project and the MNH Project

Components	**OFPP Project**	**Components of the MNH project**
Community intervention	Peer educators 18 years and older (men and women) to educate women and their families about the signs of obstructed labor and importance of MCH delivery to prevention an OF	Village Health Workers (VHWs) – a cadre of selected indigenous women 15 years old or older trained to engage directly with families over health choices they make that affect maternal and neonatal survival and provide linkage to the facility
Transportation of women to MCH clinics and hospitals	Government funded locally available taxis and buses to convey women in labor to MCH clinics	Transport Workers and community Transport Volunteer to provide charge-free emergency transport to health facilities for women in labor
Supplies to MCH clinics	OF screening algorithm charts	Essential commodities to facilitate improved quality of care in MCH clinics.
MCH healthcare providers	MCH providers trained to assess OF at-risk women	none

Community intervention: peer educators will be indigenous men and women 18 years or older nominated by community leaders that also meet the program's eligibility criteria. The criteria for selecting peer educators include ability to read and write either in English (Grade 6 level English) or the local language (Hausa), willingness to go into the community to teach people about the socio-economic and cultural factors associated with OF incidence and on the importance of women delivering in the MCH clinic to prevent an OF. These peer educators will be provided with a 10-day training course on the basics of an OF (Table 2). They will also be provided with pictorial booklets that will guide their educational sessions with pregnant women and their families. The female peer educators will be required to meet women and matriarchs (mothers and mothers-in-law) in their homes to teach them about OF using pictorial charts. While the male peer educators will be encouraged to educate men at social gatherings about OF and the importance of supporting their wives to use MCH services to prevent OF. For a population of 2 million, we will train 1,000 peer educators. Considering 60% of the population is female, we will target recruiting 600 female educators and 400 male educators. Peer educators will be paid monthly stipends (table 5).

Table 2:Peer educators training curricula

Module	**Module Topic**
Module A	Definition and pathophysiology of an Obstetric Fistula
Module B	The socio-economic factors associated with developing and OF (poverty, malnutrition, childbirth at an early age)
Module C	Importance of nutrition and identification of local sources of nourishment for growing girls and women.
Module D	Importance of using MCH services during pregnancy and for childbirth in a timely manner.
Module E	Signs of obstructed labor (labor for more than 24 hours, mother exhausted and weak, ruptured membranes and passing amniotic fluid)[7]
Module F	The importance of family member support (husbands and matriarchs) in supporting women to use MCH services for pregnancy and childbirth

Transportation of women to MCH clinics and hospitals: we propose the GSGHA should provide free transportation to the MCH clinics for all women in labor. This component of the project could rely on the already existing transportation services in the state (Taxis and buses). The GSGHA should have a list and contact information of all taxi and bus drivers operating within communities that will be involved in this intervention. The list will be given to the peer educators to distribute to pregnant women, their partners and family members. The list will be used by a woman in labor/family members to contact one of the drivers (preferably one more proximal to her location) to convey her to the MCH clinic at no charge to the woman/her family. The woman/family member will be required to give the driver's name to one of the peer educators. The peer educator will then record the driver's name and contact in logbook (Table 3). The logbook will then be submitted to the GSGHA at the end of each month. Based on the content of the logbook, the GSGHA will pay all listed drivers their monthly expense of conveying women to MCH facilities.

Table 3: Peer educators' driver record logbook sample

Date	Driver's first and Last name	Patient's name (woman in labor)	Name of MCH facility

Training of MCH healthcare providers: one healthcare provider (doctors, nurses, or midwife) from each 300 MCH intervention clinics will be selected and trained to identify, manage, and refer women at risk of an OF to the hospital when necessary (Table 4). A one-page OF risk assessment algorithm chart will be given to all the 300 MCH clinics. These charts will guide providers in identifying and managing women at risk for OF. These providers will be paid a monthly stipend (Table 5).

Table 4: Healthcare providers training curricula

Module	**Module Topic**
Module A	Identify women at risk of an OF when they arrive in the clinic ● Labor more than 24 hours ● Check for Cephalopelvic disproportion ● Check for fetal distress (meconium in amniotic fluid)[7]
Module B	Indications for caesarean section

Module C	Indications for catheterization to prevent fistula formation among women at risk.
Module D	Timely referral of women who need more specialized to the hospital

Table 5: Budget

Items	***Trainings***	***Type of training***	***Cost per unit***	***Number of people***	***Frequency***	***Sub-Total***	***Total***
1	Peer educators (PEs)	Initial training (10 days)	@$50 per PE	1000	1	$50 000	
2	PEs	Refresher training (2 days)	@$20 per PE	1000	4	$80,000	
3	MCH clinics healthcare providers	Initial training (5 days)	$60 per provider	300	1	$18,000	
4	MCH clinics healthcare providers	Refresher training (2 days)	@$20 per provider	300	4	$24,000	
	Stipends		***Cost per person***	***Number of people***	***Frequency***	***Sub-Total***	
2	PEs		@$100 per month	1000	for 24 months	$2.4 million	
3	MCH clinics healthcare providers		@200 per month	300	for 24 months	$1.4 million	
4	***Transportation of women to MCH clinics***		***Cost per person***	***Number of people***	***Duration***	***Sub-Total***	
5	Taxi and bus drivers		$2.00 per woman transported	68,000 women for 12 months	For 24 months	$272,000	
6							
	Materials		***Unit cost***	***Amount***		***Total***	
7	Pictorial flip chart booklets for PEs		@ $5	1000		$5000	
8	Driver's logbooks for PEs		@$2	1000		$2000	
9	Obstetric fistula screening algorithm chart		@$5	600 (2 per clinic)		$3000	
11	Total						**$4,254,000**
12	Add 15% of total for overheads						638,100
13	**Grand Total**						**$4,892,100**

Program evaluation

The Social Ecological Model of Health

The evaluation of our intervention will be guided by the social ecological theoretical model.[13] The multifaced nature of this model, which addresses wider determinants of health, aligns with our multilevel intervention.[14] similar to our intervention, the model recognizes that behaviors both affect and are affected by various contexts.[15] Therefore, this model will help us evaluate our multilevel intervention on the individual, the interpersonal level, the community, society, and public policy levels.[13]

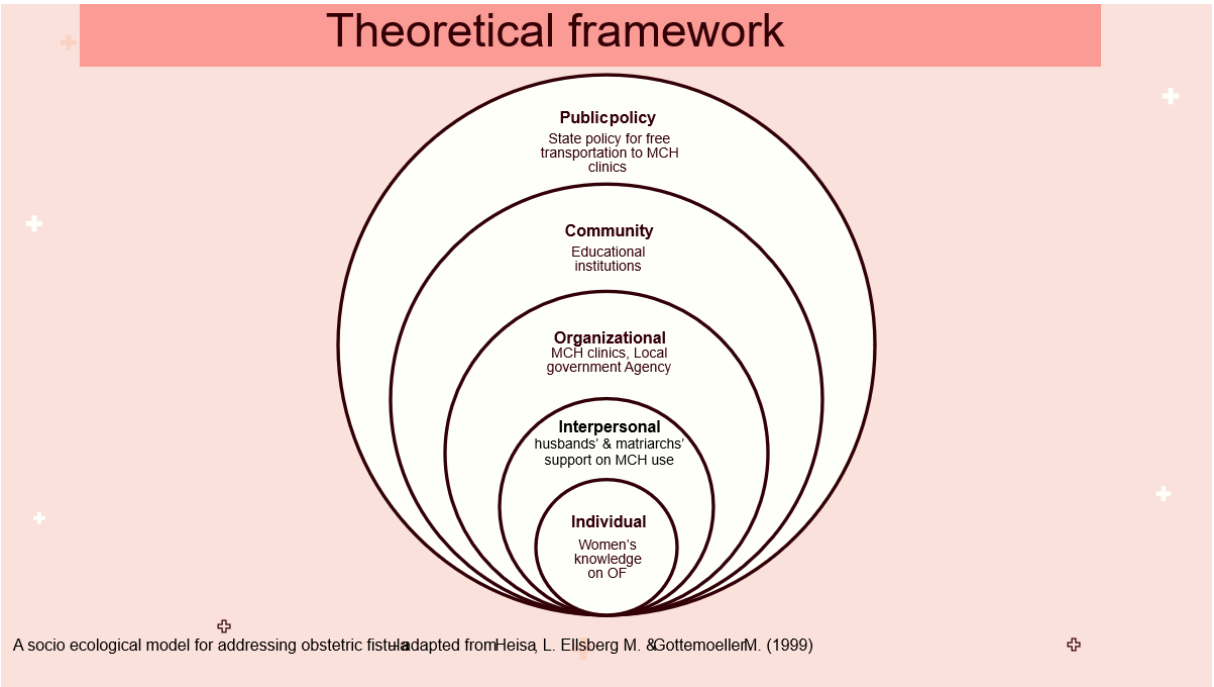

Figure 2: A socio ecological model for addressing obstetric fistula - adapted from Heisa, L. Ellsberg M. & Gottemoeller M. (1999)

The socioecological model			
Level	**Influences**	**Strategy**	**Activities**
Individual	Knowledge of socio-economic and cultural drivers' factors associated with developing an OF and how to prevent OF.	Educate pregnant women and women of reproductive age about the socio-economic and cultural drivers of developing obstetric fistula. Educate them on how to prevent an OF.	In person, one-on-one or group home/community based educational sessions facilitated by peer educators.
Relationships	Husbands and matriarchs to give women financial and emotional support to use MCH services.	Educate husbands and matriarchs, on how use of MCH services for childbirth can prevent women from developing fistulas.	In person, home/community based educational sessions on the on how obstetric fistulas can be prevented through girl-child education, women empowerment, and use of MCH services for childbirth. Sessions to be facilitated by peer educators with groups of matriarchs and husbands respectively
Organizational	MCH clinics providers' skill in identifying and managing women at risk of developing an OF and referring women to the hospital in a timely manner when necessary.	Educated MCH clinic providers on how to identify and manage women at risk for developing a fistula and on when to refer women to the hospital in a timely manner when necessary.	Two weeks (10 days) training workshops for healthcare workers.
Community	Factors that make women vulnerable to developing an obstetric fistula.	Collaborate with government to provide more school opportunities for girls, example, lower tuition for girls, and encouraging organizations to employ more female workers.	Head count of educational institutions accessible to girls and women in this community. Assess the cost of attending these institutions (tuition and transportation cost) and quality of education in these institutions.

Public policy	Factors that limit women from accessing MCH services in a timely manner when in labor.	The GSGHA to mobilize and finance transportation available within the community (taxi and bus drivers) to transport pregnant women in labor to MCH clinic and the hospital when necessary.	Peer educators will distribute to pregnant women and their families a comprehensive list of the names and contact information of local taxis and bus drivers within the community.

Evaluation

Table 6: Evaluation matrix based on the social ecological model

The socioecological model						
Level	**Outcomes**	**Indices (Through intervention compared to baseline data)**	**Baseline**	**Target**	**Data source**	**Frequency of data collection**
Individual	Number of women that are knowledgeable about on the socio-economic and cultural drivers of developing obstetric fistula at the end of intervention (24 months).	Proportion of women that are knowledgeable about the socio-economic and cultural drivers of developing obstetric (reproductive age).	10%	50%	300 Surveys completed by women of reproductive age.	Annually
Relationships	Number of husbands, and matriarchs, who facilitate women's' access to a MCH clinic within the first 24 hours of labor.	Proportion of women brought to the MCH clinic during labor that were supported either financially and/or accompanied by their husband or a family matriarch.	5%	30%	MCH clinic and hospital records	Annually
Organizational	The number of women at risk for fistula identified, managed	Proportion of women who were catharized at the MCH clinics to prevent development of an OF and	15%	60%	MCH and hospital records	Every 3 months

	accordingly, and referred to the hospital in a timely manner.	the number of women referred to the hospital for a cesarean section.				
Community	The number of girls/women newly enrolled in education institutions.	Percentage increase in the number of females enrolled in educational institutions in the two academic years while the program is active.	30%	60%	Educational institutions educational records.	Annually
Public policy	The number of women/family member who contacted taxi, or bus driver, and used the service to get to either and/or a MCH clinic or hospital after a referral from the MCH clinic.	Number of taxi or bus drivers that conveyed women in labor to MCH clinic or hospital.	10%	50%	Local government records of the number of taxi or bus drivers compensated for their services.	Every 3 months

Strengths of the OFP Program

- Although the intervention is designed to reduce the incidence of OF, it will indirectly address the socio-economic and cultural factors associated with maternal mortality and maternal morbidity as well. It is in line with broadly addressing other maternal health issues that the OFP program will purposefully accommodate the cost of transporting all women in labor (not only those who have signs of an obstructed labor), to the clinic.
- A similar intervention the MNH project has shown to be successful in increasing the use of MCH clinics in Gombe stated from 27% to 65% within two years of intervention[12].

Weaknesses of the OFP Program

- The OFP Program is multifaceted, therefore, even after evaluation, it will be difficult to delineate which component(s) intervention would have been most effective independently of the other components of the intervention.

Alternative Intervention

- The different components of the OFP Program could be independently implemented in different parts of the state to assess which intervention is most cost effective. The outcome of such smaller interventions will provide information on which component(s) of the OFP program is/are most cost-effective. This information could guide law makers on which component(s) of the program to prioritize when available resources cannot be stretched to accommodate implementing the multiple components of the OFP Program.

Alternative evaluation strategy

- An alternative method to evaluate this intervention is to compare the outcome indices from communities that have benefited from the program against communities that the program was not implemented.

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