



An adequacy evaluation of a maternal health intervention in rural Honduras: the impact of engagement of men and empowerment of women

Peter R. Berti,¹ Salim Sohani,² Edith da Costa,² Naomi Klaas,³
Luis Amendola,⁴ and Joel Duron⁵

Suggested citation

Berti PR, Sohani S, da Costa E, Klaas N, Amendola L, Duron J. An adequacy evaluation of a maternal health intervention in rural Honduras: the impact of engagement of men and empowerment of women. *Rev Panam Salud Publica*. 2015;37(2):90-7.

ABSTRACT

Objective. To determine the impact that a 6-year maternal and child health project in rural Honduras had on maternal health services and outcomes, and to test the effect of level of father involvement on maternal health.

Methods. This was a program evaluation conducted through representative household surveys administered at baseline in 2007 and endline in 2011 using 30 cluster samples randomly-selected from the 229 participating communities. Within each cluster, 10 households having at least one mother-child pair were randomly selected to complete a questionnaire, for a total of about 300 respondents answering close to 100 questions each. Changes in key outcome variables from baseline to endline were tested using logistic regression, controlling for mother's education and father's involvement.

Results. There were improvements in most maternal health indicators, including an increase in women attending prenatal checkups (84% to 92%, $P = 0.05$) and institutional births (44% to 63%, $P = 0.002$). However, the involvement of the fathers decreased as reflected by the percentage of fathers accompanying mothers to prenatal checkups (48% to 41%, $P = 0.01$); the fathers' reported interest in prenatal care (74% to 52%, $P = 0.0001$); and fathers attending the birth (66% to 54%, $P = 0.05$). There was an interaction between the fathers' scores and the maternal outcomes, with a larger increase in institutional births among mothers with the least-involved fathers.

Conclusions. Rather than the father's involvement being key, changes in the mothers may have led to increased institutional births. The project may have empowered women through early identification of pregnancy and stronger social connections encouraged by home visits and pregnancy clubs. This would have enabled even the women with unsupportive fathers to make healthier choices and achieve higher rates of institutional births.

Key words

Maternal and child health; maternal health services; paternal behavior; prenatal care; prenatal education; program evaluation; Honduras.

¹ HealthBridge, Ottawa, Canada. Send correspondence to Peter Berti, email: pberti@healthbridge.ca

² Canadian Red Cross, Ottawa, Canada.

³ DevEd International Incorporated, Guelph, Canada.

⁴ Independent consultant, Tegucigalpa, Honduras.

⁵ Honduran Red Cross, Tegucigalpa, Honduras.

In 2013, nearly 300 000 women in the world died during pregnancy and delivery (1). Disparities in maternal health status are broad and varied, between rich and poor, urban and rural areas, and

between and within countries (2). Where pregnancy and delivery health care services are scarce and information lacking, there is less likelihood that a woman will seek medical attention during preg-

nancy, childbirth, and the postnatal period. And although having a skilled attendant present at birth is considered to be the single, most-effective intervention for ensuring the best outcome for mother and child (3), only 32% of the world's poorest women are accompanied by one, compared to 86% among the wealthiest (2). Moreover, women usually bear the primary responsibility for family care and health, but gender inequality can deprive them of the decision-making power to access necessary services and resources. Of late, increasing the involvement of males in reproductive and maternal health services is being examined as a possible means of expanding coverage and outcomes by capitalizing on existing gender roles (4).

In recent years, Honduras has made significant progress in public health. From 1990–2012, life expectancy increased from 67 to 74 years of age and mortality among children under 5 years of age dropped from 59 to 23 per 1 000 live births (2). In 2013, the maternal mortality rate in Honduras was 120 per 100 000 live births, down from 290 in 1990; and 83% of women had an institutional birth attended by a health professional (5). In 2005, the Pan American Health Organization (PAHO) identified Honduras as a “priority country” due to extreme levels of poverty, inequality, indebtedness, and poor health (6). The Honduran National Health Plan for 2006–2021 (7), developed by the Ministry of Health, proposed a series of strategies to reduce maternal and child morbidity and mortality, including *Atención Integral a la Mujer* (Comprehensive Care for Women; AIM), and the REDES project adopted the AIM as a means of strengthening the National Health Plan.

The REDES project

The “Networks for Community Health,” known as REDES, was a 6-year project designed to help the Government of Honduras achieve the goals set by its National Health Plan for 2006–2021. It was managed by the Honduran Red Cross and the Ministry of Health of Honduras from 2006–2012, with support from the Canadian Red Cross and the Canadian International Development Agency. It sought to create a synergy among health interventions and build capacity through communities, health

services, governmental organizations, and the Honduran Red Cross. The first months of the project were spent on planning, hiring staff, negotiating agreements with the Ministry of Health and local governments, and preparing training materials. Contact with the communities and actual implementation activities were not initiated until after the baseline survey was completed in November 2007.

The principal objectives of the REDES project were to improve the health of children under 5 years of age, the health of women of reproductive age, and to reduce maternal and child mortality by strengthening maternal and child health programs and expanding health services coverage. The work was carried out in 229 rural communities in northwestern departments of Copán and Santa Bárbaras. REDES focused its efforts on community mobilization and empowerment, advocacy for strengthening community health resources at the local level, promotion of gender equality within family health, and improved access to institutional health services, both in terms of coverage and quality.

REDES developed a cross-cutting gender strategy to promote the participation of men during pregnancy, birth, and postpartum activities. Ministry of Health staff, volunteers, and community leaders were trained to encourage and support men in playing a bigger role in family health. Gender and health support groups for men were established to educate and promote involvement. The gender strategy was only carried out in 10 pilot communities and was not scaled up to the entire project area.

Project components that were directly related to maternal health are highlighted in the flowchart in Figure 1. The flowchart depicts the activities of the different stakeholders, as well as the primary and secondary outcomes. Trained Honduran Red Cross volunteers carried out community training sessions on family planning and gender, and conducted household visits. During the household visits, volunteers identified any pregnant women, updating the community health system, which in turn informed the Ministry of Health. The women were invited to participate in a community pregnancy club that met a few times a month to provide support to pregnant women and encouraged devel-

oping a birth plan. This birth plan was a tool for pregnant women and, ideally, the fathers, to plan the delivery of the child, including who would accompany the mother and attend the birth, where the birth would take place, and how she/they would arrive at the birthing location, as well as how to handle birth-related expenses.

The volunteer would also refer the pregnant woman for prenatal checkups at a local health facility. The intended outcome of these activities was that the woman would recall the various messages, seek routine medical attention, and have a delivery plan that included delivery at a health facility, i.e., an “institutional birth,” with a skilled birth attendant. Within 3 days of the birth, a volunteer would visit the household to check on the mother and newborn, and encourage the mother to attend postnatal checkups at the health facility. Volunteers also provided community training on family planning and gender equality, encouraging men to participate in different aspects of the pregnancy and child care. The ultimate outcome would be that maternal health would improve and the maternal mortality rate (MMR) would decline.

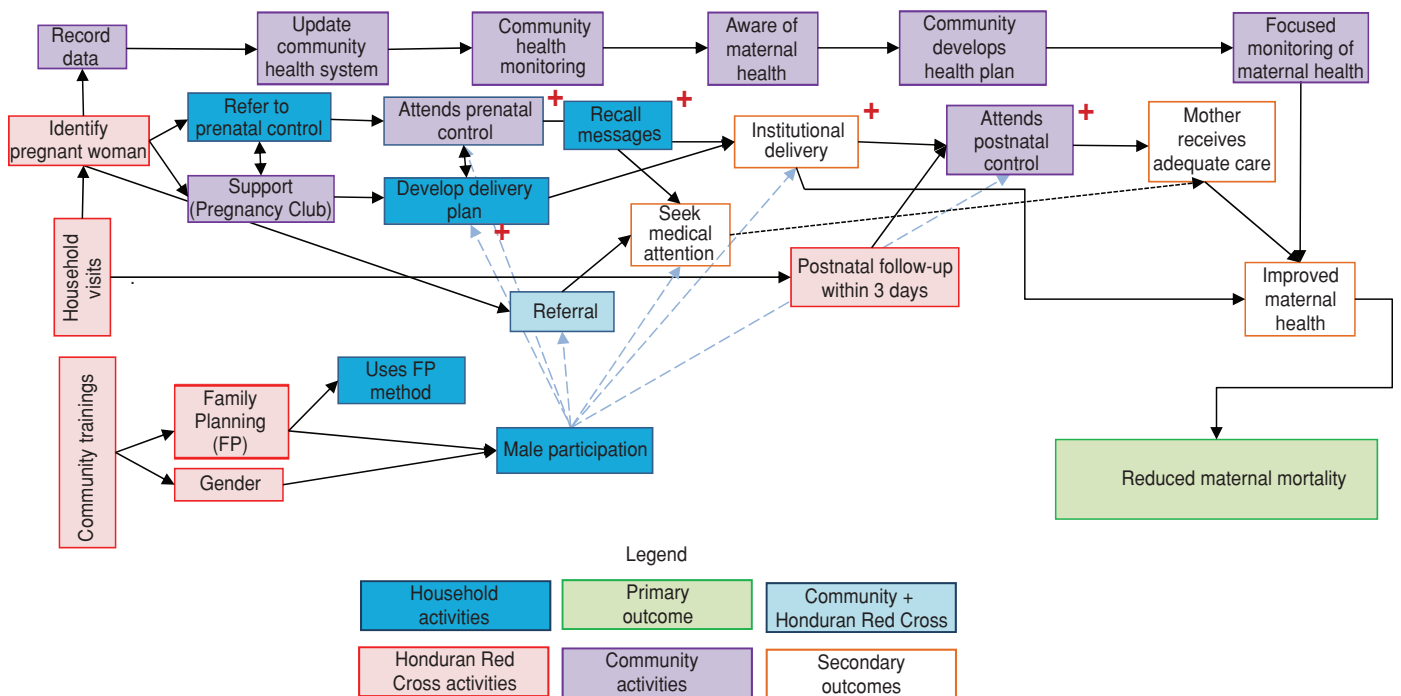
The objectives of this program evaluation were to determine the impact of REDES on maternal health services and outcomes, and to test the effect of the level of father involvement on maternal health.

MATERIALS AND METHODS

Survey population

To evaluate the REDES program, representative household surveys were conducted at baseline in November 2007 and at endline in July 2011, using 30 cluster samples. For both surveys, 30 villages were randomly selected from the 229 communities participating in the project area, with a probability of village selection proportional to village size. Within each village, households were randomly selected from a village census, limited to those that had a mother with a child under 2 years of age. Ten households per village were usually sampled, although occasionally as few as seven (when there were fewer than 10 households with a mother-child pair) and as many as 13 households (to make up for a deficit

FIGURE 1. Impact flowchart for the “Networks for Community Health” (REDES) project in northwestern Honduras, 2006–2011, showing aspects related to maternal health, with red “plus sign” indicating points at which there is baseline and endline survey data for relevant indicators



in mother-child pairs in a neighboring village) (8). The interviewers visited the selected household, explained the purpose of the survey to the mother, and asked her to provide informed consent to participate. All who were asked to participate consented.

Survey instrument and interviews

This evaluation used a questionnaire modeled on a survey tool developed by the Child Survival Technical Support Project at Johns Hopkins University (Baltimore, Maryland, United States) (8). It was modified according to the evaluation’s objectives (e.g., dropped questions about malaria and AIDS), so that it comprised 101 questions covering household demographics, prenatal and postnatal maternal care, details about the birth and delivery care, mothers’ perception of the father’s role in caring for a pregnant partner; and family planning, as well as other questions specific to child health. The questions were slightly adapted to the local Spanish spoken in the project area. The survey was administered by 15 interviewers at baseline, and 17 at endline. Interviewers completed 3 days of training and

field testing to ensure that each question would be similarly interpreted by each interviewer and that they would confirm, through probing, that questions were similarly understood by each respondent (8). Data were entered into Epi-Info™ (9) and reviewed for completeness and accuracy.

The focus of the analyses presented here is related to prenatal and postnatal care, care during birth, and the father’s involvement during the pregnancy and in caring for the mother. The father’s involvement in the mother’s pregnancy was measured by her response to three questions: “Did the father accompany the mother to any of the prenatal check-ups?” “Did the father express interest in what took place at the checkups (as perceived by mother)?” and “Did the father accompany the mother to the birth?” If all three questions were affirmative, the father was scored as “highly involved/A;” if two questions were affirmative, the score was “moderately involved/B;” and if none or only one question was answered affirmatively, the score was “minimally involved/C.” Single mothers made up about 20% of the sample and were categorized separately.

Data analysis

The analyses were conducted using SAS Version 9.3 (SAS Institute Incorporated, Cary, North Carolina, United States) using PROC SURVEYFREQ and PROC LOGISTICS, with “village” as the cluster, and weighted according to sample size per village and village population). Changes in key outcome variables were tested from baseline to endline using logistic regression, controlling for mother’s education (often a key determinant of outcomes) (10) and father’s involvement score. Relationships between points on the impact pathway were tested with five multivariable logistic regressions (Figure 1). The five models tested the five outcome variables: “Mother knew pregnancy danger signs;” “Mother took micronutrient supplements” (either iron, folic acid, or both); “Parents developed a delivery plan;” “Institutional delivery;” and “Mother attended postnatal checkup” against the independent variables “Survey” (baseline or endline); “Father’s score”(A, B, or C); “Mother attended prenatal checkups” (yes/no); Mother’s education (none; primary, incomplete; primary, complete; secondary or more);

and “Parents have a delivery plan,” and Institutional delivery (yes/no, only included in model for mother attending postnatal checkups).

Ethics approvals

All aspects of the REDES intervention and evaluation, including selection of the participating communities, health personnel training methods, all project activities, sample selection, questionnaire content, and data collection, manage-

ment, and analysis were approved by the Ministry of Health of Honduras. All respondents in the baseline and endline surveys provided informed consent after understanding the purpose of the survey. The data was password-protected and the respondents’ names were stripped from the data set after data cleaning.

RESULTS

Basic, relevant traits of the survey population are shown in Table 1. For

most of the 101 survey questions, there were about 300 responses, with 1–10 answers missing, usually due to the mother declining to respond (Table 2).

Most of the indicators improved from baseline to endline (Table 2) in simple tests of proportions. When modeled in multivariable logistic regression, controlling for mother attending prenatal checkup, the father’s involvement score, the mother’s education level, and the parents having a delivery plan, only the rate of institutional births increased significantly from 44% to 63% ($P = 0.01$).

Contrary to expectations and the goals of REDES, the involvement of fathers decreased—as measured by the percentage of fathers who accompanied mothers to prenatal checkups, were interested in the checkup results, and accompanied mothers to the birth. Father involvement from baseline to endline surveys declined from two-thirds to nearly one-half. However, there was an interaction between the fathers’ scores and the outcomes (Figure 2), evidenced by an increase in the percentage of institutional births among women with the least-involved fathers. Other maternal health variables (prenatal supplements, attendance at pre- and postnatal checkups) showed a similar pattern, with the most pronounced improvement among women with the least-involved fathers (data not shown).

TABLE 1. Basic traits of a population surveyed to evaluate the impact of the “Networks for Community Health” (REDES) project on maternal health in rural Honduras, at baseline in 2007 and endline in 2011

	Baseline		Endline	
	<i>n</i>	Mean (%)	<i>n</i>	Mean (%)
Mother is literate	297	63.7	298	71.0
Mother works outside of home	299	6.1	298	7.3
Mother’s education	296		293	
None ^a		36.8		30.9
Primary school, incomplete		23.8		38.0
Primary school, complete		37.2		24.9
Secondary school or more		2.3		6.2
Mother’s age (mean ± SD ^b)	299	26.6 years ± 2.9	295	25.1 years ± 2.5
Child’s age (mean ± SD)	298	12.2 months ± 2.6	299	11.8 months ± 2.4

^a This category, “none,” was used for those who self-reported illiteracy—it was assumed that they had no schooling.

^b Standard deviation.

TABLE 2. Mean and standard error of the mean (SEM) of key project indicators from baseline (2007) and endline (2011) surveys to evaluate the impact of the “Networks for Community Health” (REDES) project on maternal health in rural Honduras

Indicator	Baseline survey			Endline survey			<i>P</i> ^a	<i>P</i> ^b
	<i>n</i>	Mean (%)	SEM (%)	<i>n</i>	Mean (%)	SEM (%)		
Iron supplements during pregnancy	300	73	3.9	294	83	3.3	0.06	0.18 ^c
Folic acid supplements during pregnancy	299	75	3.5	298	86	3.5	0.05	0.16 ^c
Parents had a birth plan	291	46	4.2	289	52	5.6	> 0.10	0.16 ^c
Mother attended prenatal check-ups	249	84	3.0	274	92	2.3	0.05	0.11 ^{cd}
Institutional birth	300	44	4.8	281	63	5.8	0.01	0.01
Mother attended postnatal checkup	276	64	6.1	290	73	5.2	> 0.10	0.25
Mother’s perception of father’s involvement	300			300				
1. Accompanied her to prenatal checkups		48	6.5		41	4.2	> 0.1	
2. Interested in results of the prenatal checkups		74	2.7		52	5.9	< 0.0001	
3. Accompanied her to birth		66	2.8		54	5.4	0.05	
Father’s involvement score								
A (yes to all 3 items)		35	5.1		23	3.8		
B (yes to 2 items)		28	4.9		18	3.4		
C (yes to 0 or 1 items)		18	3.2		39	5.1		
Single mother		19	2.9		19	2.9		

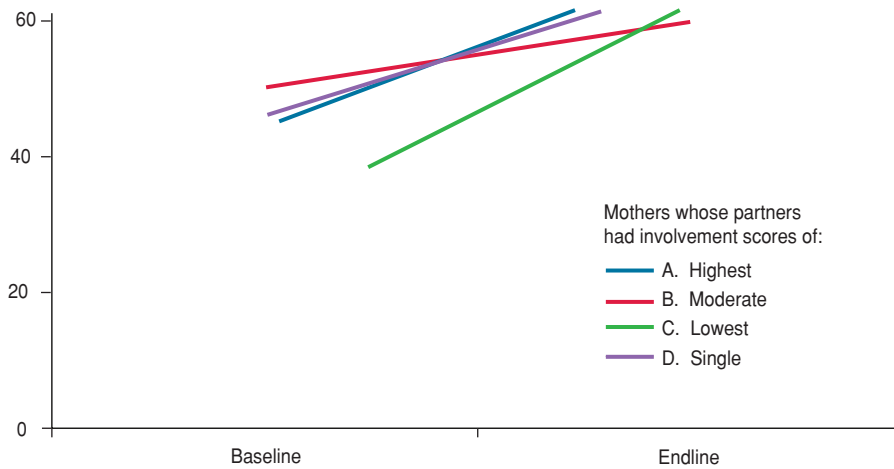
^a Chi-square test of proportions, baseline versus endline.

^b Wald chi-square of baseline versus endline in multivariable logistic regression, with the model “outcome variable = Survey + attending prenatal checkup + Father’s Score + Mother’s Education.” For Institutional birth model, “parents have a plan for delivery” is also included in the model. For Mother attended postnatal checkup, “Institutional birth” is also included in the model.

^c Indicates that father’s score is significant determinant in multivariable logistic regression, $P < 0.05$.

^d Indicates that mother’s education is significant determinant in multivariable logistic regression, $P < 0.05$.

FIGURE 2. Change in institutional births (%) from baseline survey in 2007 to endline in 2011 among mothers with partners who had different levels of involvement and single mothers, as an evaluation of the impact that the “Networks for Community Health” (REDES) project had on maternal health in northwestern Honduras



The odds ratios from the multivariable logistic regression are shown in Table 3. The only significant increases from baseline to endline were for institutional birth. The father’s score was a significant factor in the mother’s awareness of pregnancy danger signs, in whether or not the mother took supplements, and in the parents having a delivery plan, but not in institutional birth or attending postnatal checkups. Mother’s education was a significant factor for institutional birth,

with the most-educated women having a higher rate than the least-educated.

The only model in which “survey” was a significant factor (i.e., the only outcome variable for which there was a difference between baseline and endline) was for institutional birth, with an odds ratio of 2.1. Institutional birth was also improved by mother’s attendance at prenatal checkups. The only aspect in which highly-involved fathers outperformed less-involved fathers was in the develop-

ment of a delivery plan, although having a delivery plan did not increase the likelihood of an institutional birth.

DISCUSSION

An adequacy evaluation measures general changes over time, and determines if the changes took place in the expected direction; however, it does not allow for full attribution of the changes. Attribution would require a plausibility or probability evaluation (11). Determining the maternal health impact of REDES through this adequacy evaluation was accomplished by focusing on the hypotheses that maternal health outcomes would be improved by: (a) involvement in REDES, and (b) involvement of the father during pregnancy and child birth.

Involvement in REDES

Regarding the first hypothesis that involvement in REDES would improve maternal health outcomes, a comparison of simple frequencies indicated changes from baseline to endline in most indicators (Table 2). However, when controlling for other factors through a multivariable logistic regression, the only increases were in attendance at postnatal checkups and, very importantly, percentage of institutional births: an

TABLE 3. Odds ratios for multivariable logistic regression analyses of five outcome variables from baseline (2007) and endline (2011) surveys to evaluate the impact of the “Networks for Community Health” (REDES) project on maternal health in rural Honduras

Independent variable		Outcome variables (Yes/No)				
		1. Mother knew pregnancy danger signs	2. Mother took iron supplements	3. Parents had a birth plan	4. Birth took place in an institution	5. Mother attended postnatal checkup
Survey	Baseline vs Endline	— ^a	—	—	2.1 ^b	—
Prenatal checkups	No vs Yes	3.3 ^c	13.9 ^c	—	6.5 ^c	4.9 ^c
Father’s score ^d	B vs A	—	0.5 ^b	—	—	—
	C vs A	—	—	2.6 ^c	—	—
	SM vs A	1.8 ^b	—	6.9 ^c	—	—
Mother’s education ^e	0 vs 3	—	—	—	5.0 ^b	—
	1 vs 3	—	—	—	3.6 ^b	—
	2 vs 3	—	—	—	—	—
Parents have a birth plan	No vs Yes	NA ^f	NA	NA	—	NA
Institutional birth	No vs Yes	NA	NA	NA	NA	—

^a The cells are left empty when the odds ratios are not different from 1 ($P < 0.05$).

^b $P < 0.05$

^c $P < 0.001$ for associated Wald chi-square

^d Father’s score for involvement in mother’s pregnancy: A = highly involved, B = moderately involved, C = minimally involved, SM = single mother.

^e 0 = none, 1 = incomplete primary, 2 = complete primary, 3 = secondary or more.

^f NA = not applicable, not included in model

increase from 44% to 63% (OR = 2.1; $P = 0.002$). The Lives Saved tool (LiST) (12) was used to estimate the impact of REDES. With LiST, various parameters around demographics, life, health, and healthcare at baseline and at endline were entered into a model that generates estimates of various health outcomes. Driven by the increase in institutional birth, there was an estimated decrease in MMR from 112 at baseline to 84 per 100 000 live births at endline.

As previously stated, the most recent estimates from WHO show that MMR in Honduras dropped from 290 in 1990 to 120 in 2013 (5). The United Nations Millennium Development Goals (MDGs) call for a three-fourths reduction in the maternal mortality ratio between 1990 and 2015. If the REDES project were scaled up nationally and achieved an MMR of 84, it would mark a 71% reduction since 1990—very close to the MDG.

Fathers' engagement and women's empowerment

The second hypothesis was that fathers' involvement would contribute to improved maternal health outcomes. The literature is conclusive that well-executed programs can change the behaviors of men, at least in the short term (13). We anticipated a positive impact on maternal health, but in fact the fathers' involvement scores were worse at endline, and were not related to institutional birth. However, the father's involvement was positively related with the mother knowing pregnancy danger signs, taking iron supplements, and parents having a delivery plan, perhaps indicating a benefit in emotional and social support that influenced women towards positive health behaviors.

The 1994 United Nations International Conference on Population and Development emphasized the need to involve men in improving the reproductive health status of women (14). The conference's 20-year Program of Action promoted men's shared responsibility and active involvement in prenatal, maternal, and child health. A recent review of the literature validates the Program of Action, showing that engaging men can have numerous benefits in maternal and newborn health, including increased uptake of health services, reduced maternal workload during pregnancy, improved

nutrition and wellbeing during pregnancy, improved birth preparedness, and improved communication and emotional support during pregnancy and postnatal care (4, 15).

However, fathers' involvement in maternal health worsened during REDES. While this change was difficult to explain, this phenomenon has been observed in other programs designed to reach men (16), with one study in Nepal observing increased female autonomy related to decreased male involvement in maternal health, including decreased accompaniment to prenatal checkups (17). In REDES pilot areas where an intense effort was made to engage men, their involvement did increase,⁶ but the effort was not scaled up to the whole project area. This may explain why the involvement of fathers did not increase, but it does not explain the decrease.

We speculate that in the REDES context there is a cultural stigma toward men perceived as too involved in "women's work," as well as active discouragement by medical staff of the father's support during labor. This stigma may have prevented some men from visibly engaging in their partner's pregnancy, though they may have been supportive in less overt ways. But contrary to this, it appears that the women with the least supportive partners experienced the greatest improvements in rates of institutional birth. Rather than the father's involvement being key, the increase in institutional births appears to have been related to changes in the women. REDES may have empowered women through early identification of pregnancy and by strengthening social connections via home visits and pregnancy clubs, so that even the women with unsupportive fathers were able to make healthier choices and achieve higher rates of institutional births.

Societal norms can strongly reinforce gender roles, often allowing men to have strong decision-making power and control over women (18). There is some concern that too much male involvement in maternal health issues could mean disempowerment and a further loss of control for women. In one example from Zimbabwe, women's ability to travel to clinics or interact

with other women was restricted when men's engagement was increased (19). It is also important to avoid unintentionally discouraging single or unaccompanied women from accessing services by giving higher priority to women accompanied by men. To reduce the risk of any possible negative consequences of involving men, it is important that women play a role in developing strategies that engage men and encourage shared decision-making (15).

Limitations

This program evaluation had three important limitations. First, while the data were collected at project baseline in 2007 and endline in 2011, most of the analyses and interpretations presented here were conducted in 2014. Therefore, the evaluation team was unable to return to the sites and situations as they existed then, to examine social and demographic factors that may have contributed to some of the counter-intuitive results observed. Thus, we were limited to speculation about the root causes for the discordance between involvement of fathers and outcomes.

In a similar vein, as this was an adequacy evaluation, it was designed only to measure changes over time, and determine if the changes took place in the expected direction. There may have been other local factors influencing behaviors whose effects could not be separated from the project impact. For example, in 2009, the President of Honduras was deposed; increased violence and lawlessness followed, disrupting project interventions for several months. The government's maternal health program had to continue its work without support and coordination until a new government was elected 6 months later. Any effect from these events would likely have slowed down the project and lessened its apparent impact. We know of no other maternal programs operating in the survey area at that time that would have influenced the reported outcomes.

A third limitation is that the scores for "fathers' involvement" were based on three questions answered by the mothers in the year after their pregnancy. The mothers' retrospective assessment of the fathers' involvement would have been prone to errors in memory and biases that may not have

⁶ Johnson C. Qualitative research on maternal health in Honduras. Unpublished report. 2012.

accurately reflected the fathers' real level of involvement.

Some minor limitations also include variations possibly introduced by some changes in interviewers, data entry clerks, and data managers from baseline to endline.

Conclusions

REDES achieved important improvements in institutional birth rates that would have positive impact on maternal morbidity and mortality; however, progress was made despite the decreased involvement of fathers during pregnancy and birth. To engage men acknowledges their greater decision-making power and access to and control of resources, and attempts to capitalize on these to advance maternal and child health. Engag-

ing "men as agents of positive change" moves from supporting women's health to promoting gender equity. This requires the full participation of men and women to serve the interests, survival, and well-being of all family members. However, we question whether it is effective, in this rural Honduran culture, to engage men in the health of their pregnant partners. It may be more effective to focus efforts on empowering women to make healthy decisions. Ultimately, it is important to understand which cultures and situations benefit from engaging men in maternal health, so that MMR can be most effectively lowered.

Funding. Funding for REDES, including the intervention, the data collection and evaluation was provided by the

Canadian International Development Agency (now known as the Department of Foreign Affairs, Trade and Development Canada, Ottawa, Canada), and the Canadian Red Cross (Ottawa, Canada).

Conflicts of interest. Peter Berti and Naomi Klaas declare no conflicts of interest. Luis Amendola, who led the baseline and endline surveys, was employed by Honduran Red Cross as the REDES technical coordinator from June 2010–July 2011. Salim Sohani and Edith da Costa are employed by the Canadian Red Cross and provided administrative and technical support to REDES. Joel Duron is the Director of Programs for Honduran Red Cross and provided project management and technical support to REDES.

REFERENCES

- World Health Organization. Global health observatory: maternal mortality. Geneva: WHO; 2014. Available from: www.who.int/gho/maternal_health/mortality/maternal_mortality_text/en/ Accessed on 28 February 2015.
- United Nations Children's Fund. State of the World's Children 2014. Every child counts: revealing disparities, advancing children's rights. New York: UNICEF; 2014.
- United Nations Population Fund. Skilled attendance at birth. 2013. Available from: http://web.lb.unfpa.org/mothers/skilled_att.htm Accessed on 6 January 2015.
- Davis J, Luchters S, Holmes W. Men and maternal and newborn health: benefits, harms, challenges and potential strategies for engaging men. Melbourne, Australia: Center for International Health, Burnet Institute; 2012.
- World Health Organization. Trends in maternal mortality: 1990 to 2013. Estimates by WHO, UNICEF, UNFPA, The World Bank and the United Nations Population Division. Geneva: WHO; 2014.
- Organización Panamericana de la Salud. Evaluación de mitad de período países prioritarios. In: Plan estratégico de la Organización Panamericana de la Salud, 2003–2007. Washington, DC: OPS; 2005.
- Secretaría de Estado en el Despacho de Salud, Instituto Hondureño de Seguridad Social. Plan Nacional de Salud 2021. Tegucigalpa; Instituto Hondureño de Seguridad Social; 2005.
- Organización Panamericana de la Salud. Guía para realizar la encuesta de hogares sobre las prácticas clave que protegen la salud infantil. Washington, DC: OPS; 2004. Available from: www1.paho.org/spanish/ad/fch/ca/siencuesta.pdf. Accessed on 28 February 2015.
- Dean AG, Arner TG, Sunki GG, Friedman R, Lantinga M, Sangam S, et al. Epi Info™, a database and statistics program for public health professionals. Atlanta: Centers for Disease Control and Prevention; 2011.
- Karlsen S, Say L, Souza JP, Hogue CJ, Calles DL, Gulmezoglu AM, et al. The relationship between maternal education and mortality among women giving birth in health care institutions: analysis of the cross sectional WHO Global Survey on Maternal and Perinatal Health. BMC Public Health. 2011;11:606.
- Habicht JP, Victora CG, Vaughan JP. Evaluation designs for adequacy, plausibility and probability of public health programme performance and impact. Int J Epidemiol. 1999;28(1):10–8.
- Steinglass R, Cherian T, Vandelaer J, Klemm RD, Sequeira J. Development and use of the Lives Saved Tool (LiST): a model to estimate the impact of scaling up proven interventions on maternal, neonatal and child mortality. Int J Epidemiol. 2011;40(2):519–20.
- World Health Organization. Engaging men and boys in changing gender-based inequity in health: Evidence from programme interventions. Geneva: WHO; 2007.
- United Nations International Conference on Population and Development. Cairo: Linkages; 1994. Available from: www.iisd.ca/cairo.html Accessed on 28 February 2015.
- Holmes W, Davis J, Luchters S. Engaging men in reproductive, maternal and newborn health. Melbourne, Australia: Center for International Health, Burnet Institute; 2013.
- Sternberg P, Hubley J. Evaluating men's involvement as a strategy in sexual and reproductive health promotion. Health Promot Int. 2004;19(3):389–96.
- Mullany BC, Hindin MJ, Becker S. Can women's autonomy impede male involvement in pregnancy health in Katmandu, Nepal? Soc Sci Med. 2005;61(9):1993–2006.
- World Health Organization. Engendering the Millennium Development Goals (MDGs) on Health. Geneva: Department of Gender and Women's Health, WHO; 2003.
- Marindo R, Weiss E, Pulerwitz J. Promoting male involvement and HIV prevention during pregnancy in Zimbabwe. Washington, DC: Population Council; 2004.

Manuscript received on 3 October 2014. Revised version accepted for publication on 10 February 2015.

RESUMEN**Evaluación de la suficiencia de una intervención de salud materna en un entorno rural de Honduras: repercusión de la participación de los hombres y el empoderamiento de las mujeres**

Objetivo. Determinar la repercusión de un proyecto de salud materno-infantil de 6 años de duración, en un entorno rural en Honduras, sobre los servicios de salud materna y los resultados asistenciales, y estudiar el efecto del grado de participación del padre en la salud materna.

Métodos. El programa se evaluó mediante una serie de encuestas a los hogares representativos administradas al inicio de la intervención, en el 2007, y al concluir en el 2011, con 30 muestras de agrupaciones de familias elegidas al azar entre las 229 comunidades participantes. Dentro de cada agrupación, se seleccionaron aleatoriamente 10 familias compuestas al menos por una madre y un hijo para que contestasen un cuestionario, con lo cual se reunieron en total cerca de 300 personas encuestadas que respondieron casi 100 preguntas cada una. Se analizaron las variaciones en los criterios principales de valoración, entre el inicio y el final de la intervención, mediante técnicas de regresión logística, controlando el nivel educativo de la madre y la participación del padre.

Resultados. Se observaron mejoras en la mayoría de los indicadores de salud materna, incluido un aumento de la cantidad de mujeres que acudieron a los controles prenatales (variación de 84% a 92%, $P = 0,05$) y de los partos atendidos en centros sanitarios (variación de 44% a 63%, $P = 0,002$). Sin embargo, se redujo la participación del padre, tal como refleja el porcentaje de padres que acompañan a la madre a los controles prenatales (variación de 48% a 41%, $P = 0,01$), el interés comunicado por el padre en la asistencia prenatal (variación de 74% a 52%, $P = 0,0001$) y el porcentaje de padres que estuvieron presentes en el parto (variación de 66% a 54%, $P = 0,05$). Se constató una interacción entre las puntuaciones paternas y los resultados asistenciales maternos, así como un aumento mayor de los partos en centros sanitarios en los casos en que el padre se involucraba menos.

Conclusiones. Más que la participación del padre como factor clave, el aumento de los partos asistidos en centros sanitarios puede haberse debido a los cambios en las madres. Es posible que el proyecto empoderase a las mujeres y les permitiese percatarse antes de su embarazo y reforzar sus conexiones sociales con visitas domiciliarias y grupos de embarazadas. Esto habría facilitado, aun en los casos en los que el padre no se involucraba, que las mujeres tomaran decisiones más saludables, y que aumentasen las tasas de partos atendidos en centros sanitarios.

Palabras clave

Salud materno-infantil; servicios de salud materna; conducta paterna; atención prenatal; educación prenatal; evaluación de programas y proyectos de salud; Honduras.