

Structural and Behavioral Barriers to Improving Development Outcomes

The Case of Maternal Care in Haiti

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Abstract

This paper investigates the interplay between structural and behavioral barriers that discourage pregnant women from accessing institutional care in Haiti, where despite some improvements in the past decades, maternal mortality remains a significant challenge. The analysis complements household survey data with data on service provision and qualitative data on beliefs, perceptions, and attitudes toward maternal health care. Using a mixed-methods approach, the paper confirms that transportation and poverty are important barriers that decrease the likelihood of

attending maternal health care services. At the same time, the findings show that women suffer from optimism bias and are uncomfortable with the current model of received care. These barriers discourage women from seeking, reaching, and receiving maternal health care services at health institutions. Tackling structural barriers while finding ways to encourage women to shift their beliefs, perceptions, and attitudes are key recommendations to improve maternal health in Haiti.

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Structural and Behavioral Barriers to Improving Development Outcomes: The Case of Maternal CVre in Haiti*

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1 Introduction

With 480 deaths per 100,000 live births in 2017, Haiti, was far from achieving the Sustainable Development Goal of having fewer than 70 maternal deaths per 100,000 live births by 2030 (UNICEF, 2022). In the Latin America and Caribbean region the average maternal mortality rate was 74 deaths per 100,000 live births. Pregnant women die as a result of complications such as preeclampsia, eclampsia, severe bleeding, and infections.

While some intrapartum complications cannot be reliably predicted or prevented, most of them can be successfully detected and treated with prompt diagnosis and care (Say et al., 2014). Adequate professional care before, during, and after childbirth has been proven to reduce death rates (UNICEF, 2014). Thus, all women should access antenatal care (ANC)

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during their pregnancy, skilled care during childbirth, and postnatal care (PNC) and support in the weeks after childbirth.¹

Haiti has the lowest rates of ANC and PNC in the region, with 67 and 31 percent of Haitian women receiving these services in 2017, respectively, compared to 91 and 88 percent for the whole region (UNICEF, 2022). Only 42.1 percent of women deliver with a skilled health professional, while 48 percent of women deliver with a *matron* or traditional birth attendant (IHE and ICF, 2018), who have little formal training, and often receive knowledge only from their elders. The remaining 10 percent delivers with family members, community health workers or on their own.

Low utilization rates of health care services can be explained by structural barriers, which do not depend on the individual such as costs, distance to facilities (either because of physical distance or poor state of roads), and poor quality of health centers infrastructure, or by individual behaviors and beliefs (Datta and Mullainathan, 2014), such as optimism bias², uncertainty aversion³, status quo bias⁴, or discomfort with the quality of care. Pregnant women may underestimate the likelihood of pregnancy complications, or of needing complex care beyond the capabilities of the *matrons*. Likewise, if they cannot immediately recall a family member or friend who might have required more care, they are less likely to pursue care themselves. *Matrons* may also fall victim to these heuristics and underestimate the need for care or probability of pregnancy complications, referring women to hospital care too late in a delivery scenario to save lives. Therefore, in order to improve outcomes it is essential to address both structural issues and individual behaviors. As Charter and Loewenstein (2022) highlight, policies focusing on the individual (i-frame) should be seen as complementing policies addressing the system in which individuals operate (s-frame).

This paper documents the structural and behavioral barriers that discourage pregnant women from attending institutional care during their pregnancy and delivery in Haiti. It builds on earlier research by Gage and Calixte (2006) and Wang et al. (2017), which examined the impact of physical access to health services on the use of ANC and delivery care services. Using data from Haiti, Gage and Calixte (2006) found that limited access to obstetric services and limited use of existing facilities discourage delivery at a hospital.

This paper uses data from the 2017 Haiti Demographic and Health Survey (DHS), the 2017 service provider assessment (SPA), and qualitative data collected during fieldwork in May 2018 to shed light on other factors that influence women’s decisions and emphasizes the importance of the quality of health services in shaping these decisions. The quantitative analysis uses a multilevel model, which accounts for the fact that women are nested within geographic clusters with similarly available health services, to identify determinants of women’s decision to seek and reach care and to receive adequate care. This is then complemented by the analysis of perceptions and attitudes through the qualitative data.

We find that structural factors, including difficult access to healthcare centers, can be significant for women seeking care. Many women have rational concerns about the impact of these barriers on their health. For example, traveling on rough roads by motorcycle during pregnancy and labor can be frightening and dangerous. Additionally, uncertainty about the

¹During the pregnancy, the World Health Organization (WHO) recommends four visits providing essential evidence-based interventions such as identification and management of obstetric complications (preeclampsia), and of infections (HIV, syphilis...) as well as promoting the use of skilled attendance at birth and healthy behaviours. After delivery, the WHO recommends that all mothers and babies have at least four postnatal checkups in the first 6 weeks.

²A cognitive bias that causes someone to believe that they themselves are less likely to experience a negative event.

³Preference for known risks over unknown risks

⁴Preference for the maintenance of one’s current state of affairs, or a preference to not undertake any action to change this current state.

cost of hospital stays, medication, and other expenses may prevent women in poverty from seeking clinical care. It is also common for women to be unaware of when they should seek additional medical attention. Lack of transportation is also a significant barrier to accessing maternal healthcare services. Women without transportation often have to walk long distances or rely on scarce public transport options like motorbikes or pick-up trucks. This is especially difficult in rural areas where such transportation is scarce and the roads are in poor condition. These challenges can lead to fears about the safety of both the woman and her baby during travel. Additionally, the high cost of transportation may prevent women from seeking care, even if they intend to. Structural barriers and concerns about their impact are valid and warranted, and women may be unaware of when they should seek additional care. The poor condition of roads and the risk of injury or delivery during travel can also be frightening and dangerous for pregnant women and those in labor.

Behavioral factors also play a role. Biases, such as availability and optimism bias, can prevent women from seeking necessary healthcare. Perceptions of the quality of care and the way hospitals and medical staff treat women are important factors that can affect women's decisions to seek care. Even if women are able to access hospitals, they may be deterred by negative experiences or expectations of poor treatment. Some women report feeling inferior, receiving condescending or rough treatment, or being made to deliver in uncomfortable situations. In interviews, women have expressed fears about hospital settings, including being left alone after operations or seeing infants receiving negligent care. The burden of needing family members to bring food to the hospital can also discourage women from seeking care.

Lastly, husbands may play a key role in encouraging their wives to attend institutional care. Not only are they often convinced of the benefits, but husbands also seem to care for the social status attached to being able to afford institutional care.

The paper is organized as follows. Section 2 describes the background. Section 3 focuses on the methodological framework. Section 4 presents some descriptive statistics of pregnant women in Haiti and section 5 presents the findings. Section 6 discusses the findings and concludes.

2 Background

Haiti, which spends less than 5 percent of its national budget on health ([World Bank, 2017](#)), has insufficient health infrastructure and limited healthcare workforce and medical resources.⁵ A substantial part of the population has difficulty accessing health centers due to distance, poor road conditions and/or limited access to transportation. There are 1,048 health institutions in Haiti that serve 11 million people. These health institutions are organized into three levels: the primary level, which includes community health centers or dispensaries, health centers with or without beds, and community reference hospitals; the secondary level, which includes departmental hospitals; and the tertiary level, which includes university hospitals and specialized hospitals ([MSPP, 2014, 2015](#)).

Women can receive basic obstetric services at all three levels, but they are encouraged to seek antenatal care at the primary level. Women with complications are referred to higher levels. In 2017, there were a total of 59 health facilities for moderate risk pregnancies and 41 for high-risk births (SONU-B and SONU-C,⁶ respectively). More than half of these institutions lack the trained staff to provide antenatal, postnatal, and childbirth delivery services. Haiti suffers from a severe shortage of skilled healthcare providers and has only one midwifery

⁵Haiti had less than 7 hospital beds and 2.34 medical doctors per 10,000 people compared to 20 hospital beds and 30 for 10,000 people in the LAC region.

⁶Soins Obstétricaux et Néonataux d'Urgence de Base or Complet

education program. According to the WHO, there were a total of 2,606 physicians in Haiti in 2018 while the combined number of nurses and midwives was 4,424 for a population of over 11 million ⁷. Health centers, on average, do not have two out of the six recommended medications needed for childbirth delivery (IHE and ICF, 2018).

The Government of Haiti and its partners have recently focused on improving physical access to healthcare. For example, the 2008-2013 maternal health services program provided free services to low-income women in selected health centers, with funding from the United Nations Population Fund (UNFPA) and the Canadian International Development Agency (CIDA). UNFPA and non-governmental organizations (such as Midwives for Haiti) also attempted to bring mobile prenatal clinics to populations in remote areas with limited access. Additionally, Midwives for Haiti has provided training to nurses since 2006 to increase the number of skilled midwives, while other NGOs focus on promoting continuing education for official midwives after they have received their diploma. However, to the extent of our knowledge, rigorous evaluations of these approaches are missing.

2.1 Literature on barriers to institutional care

Timely access to institutional care is a key factor to reducing maternal mortality rates, as most of the pregnancy and labor complications that can lead to death can be detected and treated by timely medical attention (Pfeiffer and Mwaipopo, 2013). Thaddeus and Maine (1994) organized barriers to accessing healthcare in a conceptual framework known as the three-delay model, which groups barriers around three different moments: (i) decision to seek care, (ii) identifying and reaching care facility, and (iii) receiving adequate and appropriate care. For each of these moments, several types of barriers have been documented.

Structural barriers

- Financial and opportunity costs. Through interviews in Kenyan slums, Essendi et al. (2010) observe that most residents want their children to be born at the hospital. However, the high cost of a hospital-based delivery and additional indirect costs (e.g for transportation) prevent them from doing so. Kyei-Nimakoh et al. (2017) conclude that the uncertainty of the delivery cost at a health institution due to the complexity of the billing system also discourages women from seeking care. Whether or not a woman has a social support network can play an important role in the decision to seek care (Thaddeus and Maine, 1994), as this network can help reduce women's opportunity cost to seek care by, for example, taking care of other children or helping with household chores.
- Distance to the health facility. Besides the physical distance other factors come into play. Thaddeus and Maine (1994) posit that the effect is even stronger when combined with lack of transportation and poor roads. For example, pregnant women that would have to walk for hours over rugged terrain will be disincentivized from even seeking care.
- Physical accessibility to health facilities. Shortage of health facilities is so substantial that even if women intend to deliver in a health facility, they may be simply unable to do so (Gage and Calixte, 2006), especially at night when transportation options are scarcer.
- Lack and/or high cost of available means of transportation results in women having to rely on walking or motorcycles to reach the health facility (Llopis Abella et al., 2020; Kyei-Nimakoh et al., 2017).

⁷Global Health Observatory data repository, WHO

- Poor road conditions and safety risks discourage women's willingness to reach obstetric care. The risk of miscarriage increases if the roads are in poor condition ([Gage and Calixte, 2006](#)). Moreover, women cannot always travel alone safely, discouraging them further. This is especially the case in very poor urban areas such as slums ([Essendi et al., 2010](#)).
- Shortages of supplies or equipment. These cause delays in receiving adequate and appropriate care at the facility. Numerous health facilities are poorly equipped, delaying care and, in some instances, forcing patients to buy the supplies, including essential drugs, which when available, many cannot afford ([Essendi et al., 2010](#)).
- Proficiency of health staff. The scarce, unqualified, and unprepared health staff cause long delays in receiving care ([Thaddeus and Maine, 1994](#)). In a qualitative study in Haiti, [Mirkovic et al. \(2017\)](#) observe that 26 percent of the women in their sample waited over four hours to be seen for antenatal care, while 28 percent spent less than five minutes with their provider.

Behavioral barriers

- Previous experience with the healthcare system, or perceived quality of care ([Bohren et al., 2015](#)) influence women's perceptions and thus their future decision to seek care ([Kyei-Nimakoh et al., 2017](#)).
- Mental models: the recognition of the need to seek care can be considered unnecessary, even more so if pain does not materialize. Pregnancy and delivery are considered natural events in almost all societies, where even death during labor can be considered as something inevitable.
- Agency: women's agency plays an important role in some areas of the world where the decision to seek care depends on the women seeking permission from their spouse or other family members to leave the house ([Kyei-Nimakoh et al., 2017](#)).
- Fear of mistreatment: In a systematic review, [Bohren et al. \(2015\)](#) find that women are sometimes mistreated during childbirth in health facilities through physical, verbal, or sexual abuse perpetrated by health providers.
- Discomfort with the model of care: It can discourage women from receiving institutional care as preferences around birth practices might not match practices at modern medical facilities. For instance, not being given the freedom to choose birthing positions, retain the placenta for burial, or have relatives nearby were reported in several studies as barriers to seeking institutional care ([Bohren et al., 2015](#); [Kyei-Nimakoh et al., 2017](#)). Fear of surgery, episiotomy, and blood transfusions also discourage women. The discomfort influences the time women want to spend at health institutions and their willingness to come back.

Because these barriers are usually interconnected, efforts to increase the use of institutional care by building more health facilities or reducing the costs of care are often not enough. While earlier studies in Haiti have shed light on structural barriers such as distance to health facility and lack of transportation ([Wang et al., 2017](#); [Gage and Calixte, 2006](#)), more needs to be uncovered with respect to the beliefs, perceptions, and attitudes of pregnant women towards institutional care and the role that quality of care and women's perception of this quality have on encouraging the use of institutional care.

3 Methodological framework

Extending earlier studies (Wang et al., 2017; Gage and Calixte, 2006), we use a mixed method design that combines findings from both quantitative and qualitative methods. The analysis of the quantitative data provides a general overview of factors that influence pregnant women’s decisions regarding institutional care while the qualitative data analysis explores in-depth beliefs, perceptions, and attitudes. During the interpretation stage, findings from the econometric model and the behavioral sciences literature are brought together, with the same weight, for a deeper understanding of the interplay of structural and behavioral barriers that prevent women from accessing institutional care (Greene et al., 2001; Cullen et al., 2011). In addition, this design provides an opportunity for triangulation of the findings across methods.

3.1 Quantitative research data and analysis

The quantitative data come from two datasets: the 2017 Demographic and Health Survey (DHS), called EMMUS (*Enquete Mortalite, Morbidite et Utilisation des Services* - Survey of Mortality, Morbidity and Service Utilization) in Haiti, and the 2017 Service Provision Assessment (SPA). The DHS dataset consists of a nationally representative sample of households interviewed between November 2016 and April 2017 by the Institut Haïtien de l’Enfance with support from Institut Haïtien de Statistiques et d’Informatique (IHSI). Besides information on household characteristics and an asset measure of wealth, typically collected in DHS-type surveys, it contains data from an in-depth survey conducted on a sample of 15- to 49-year-old women who answered questions about access to ANC, source, place, and type of assistance received during delivery for each child born within the five years prior to the survey. Surveyed women also answered questions related to decision-making in the household and agency.

In 2017, 14,371 15-49 year old women from 13,405 households were surveyed.⁸ In addition to household- and individual-level characteristics, community characteristics can be retrieved using GPS coordinates of the cluster centroid. The DHS website provides access to topographical characteristics for all clusters.⁹

The SPA data were collected between December 2017 and May 2018 on all 1,033 health centers across the country (IHE and ICF, 2018). This assessment made an inventory of all the facilities and equipment, surveyed the staff, observed visits for ANC and family planning services, as well as services for sick under-5-year-old children. Women who were observed attending ANC or family planning consultations and the families of sick children were also surveyed. All these survey tools allow the SPA to assess how much the services work and how satisfied service users are. In this paper we use data from facility inventory provided by the facility manager or most knowledgeable person on the infrastructure, supplies, staffing, and routine practices.¹⁰

The quantitative data are analyzed using a multilevel, hierarchical model to investigate the neighborhood and individual effects, while controlling for the clustered nature of the data (Bafumi and Gelman, 2007; Gage and Calixte, 2006). Multilevel models allow one to look at

⁸The DHS uses a two-stage cluster sample design, where clusters are the enumerating areas provided by the IHSI based on a 2011 update of the 2003 population census. The sampling methods are described in IHE and ICF (2018) but in this study, weights are computed to ensure the representativeness of the evidence at the national, urban-rural, and department-levels.

⁹The cluster data are anonymized by displacing the cluster centroid by, on average, 0.8 km for urban clusters (maximum displacement of 2 km), and 2.1 km for rural clusters (maximum displacement of 5 km and of 10 km for 1 percent of rural clusters) from its original location (Wang et al., 2017). This issue was not considered when linking the cluster to all available health centers within a 10 km radius from the cluster centroid from the SPA data (Burgert and Prosnitz, 2014).

¹⁰Because the SPA data are collected as a census and the level of non-response is small, differences between weighted and unweighted results are minor; the results presented are unweighted.

within-cluster and between-cluster determinants that affect the outcomes of interest, allowing for the relationships between the outcomes and the factors to vary depending on the context (Jones, 1993). Within clusters, individual characteristics are highly correlated as communities are quite homogeneous (especially in rural areas).

Women are nested within clusters (level 1), and clusters are the higher level of analysis (level 2).¹¹

Multilevel modeling treats the outcome of interest as a function of individual-level characteristics while controlling for interactions between demographics and cluster characteristics. A cluster random intercept term represents the extent of the differences in the outcome between clusters. Let Y_{is} be an indicator variable for woman i in cluster s defined as follows:

$$Y_{is} = \{1 \text{ if woman } i \text{ attends institutional care, } 0 \text{ if she does not}\}$$

where $i = 1, \dots, n$, and $s = 1, \dots, S$.

Defining institutional care as a binary variable, we model $\pi_i = P(Y_{is} = 1)$ the probability that woman i in cluster s attends institutional care when pregnant using a multilevel logistic regression model with varying intercepts and varying slopes to control for the selection bias since the outcome is only observed for pregnant women. The model is as follows:

$$\pi_i = \text{logit}^{-1}(\underbrace{\alpha_s + \beta_s x_{is}}_{\text{space variant}} + \underbrace{\theta Z_{is}}_{\text{space invariant}} + \epsilon_i) \quad \text{for } i = 1, \dots, n \quad (1)$$

where s represents the cluster s where the woman i resides. logit^{-1} is the inverse logistic function. x are individual-level and time-variant predictors while z are individual-level and space-invariant predictors. α_s and β_s are space-varying intercepts and slopes, respectively taking the following form:

$$\alpha_s \sim N(\alpha_s + \alpha U_s, \sigma_{\alpha_s}^2) \quad \text{for } s = 1, \dots, S$$

$$\beta_s \sim N(\beta_s + \beta U_s, \sigma_{\beta_s}^2) \quad \text{for } s = 1, \dots, S$$

U_s are contextual predictors at the cluster level; α_s and β_s can be further modelled as a function of cluster (G_s) predictor

$$\alpha_s \sim N(\gamma_0 + \gamma_1 G_s, \sigma_{\alpha_s}^2) \quad \text{for } s = 1, \dots, S$$

The following analysis models two outcomes:

- attending at least the recommended four ANC visits, and
- delivering in a health institution.

Using the three-step delivery framework described above, the predictors are grouped into the three steps:

1. Women's socioeconomic factors (having a job, secondary education, access to information, permission to attend health centers, and belonging to the bottom 40 percent of asset index distribution) which may explain whether she seeks care;

¹¹Since most households only have one pregnant woman, household level characteristics are treated as individual-level characteristics. Thus, there are only two levels in the present analysis: women level (level 1) and cluster level (level 2).

2. Women’s place of residence (rural or urban, mountainous cluster, cluster with access to ANC available at least 18 days a month, cluster with access to normal delivery services) and access to transportation means, which account for women’s ability to reach care; and
3. Women’s access to ANC with medications, to ANC with equipment, or access to delivery with equipment, which account for access to adequate care.

The cluster-level variables are built once a service area of 10 km around the cluster centroid has been identified using Euclidean distance¹² from within the cluster centroid to all health institutions. Health institutions can serve multiple clusters. Using the characteristics of all these health institutions, dummy variables are defined to characterize whether a certain share of health centers offer the services or have the equipment or medication for ANC or delivery.

3.2 Qualitative research design

Qualitative data come from fieldwork undertaken by two of the authors with support from Haitian researchers, in May 2018. The fieldwork explored: pre- and post-natal care behaviors, attitudes and opinions around institutional delivery, perceptions, social structures, and relationships, among other contributing factors. The instruments chosen for this study were focus group discussions (FGDs), semi-structured interviews (SSIs), and field observations of local health facilities.

Site selection was done through a two-stage process, as is common with qualitative research methods (Tracy, 2010). The first stage consisted of selecting the *département*, subnational administrative level, with the highest presence of hospitals with obstetrician care per women, and a high rate of institutional births and of births attended by a skilled provider (IHE and ICF, 2018) to ensure access. The second stage controls for availability of a SONU-B or SONU-C and identifies communal sections with a low and high percentage of births at an institution. Following these selection criteria, two communal sections, 2^{ème} Fonds-des-Nègres and 1^{ère} Chalon in the Nippes département (southwest of Port-au-Prince) were selected, as they have the lowest (25.3) and highest (67.9) percentage of institutional births respectively.

In addition to pregnant women, respondents were recruited based on their role in the decision-making process of pregnant women: traditional birth attendants, health workers, family members, community health workers, and community leaders. In total, 20 SSIs and 9 FGDs were conducted with a pre-mobilized sample of respondents in a public space in each communal section.¹³ Field observations were conducted in two health facilities: Ste-Thérèse Hospital, a public community reference hospital in 1^{ère} Chalon, and Béthel de L’Armée du Salut, a private health center in 2^{ème} Fonds-des-Nègres. After data collection, interviewers transcribed and translated recordings from Haitian Creole to French. Once the transcripts were ready, an examination of the raw data was conducted to identify key categories and patterns supported by the data. From these key categories, a code scheme was developed and discussed before being analyzed in NVivo software. The first-level codes were “Facts about maternal health system”, “Beliefs and opinions about ANC and PNC”, “Beliefs and opinions about delivery at health institutions”, “Beliefs and opinions about home delivery”, and “Profiles of actors”. Sub-codes for “Facts about maternal health” explored themes such as types, costs, equipment, staffing, and procedures for all types of health facilities and more

¹²Euclidean distance is defined as the length between two points drawn with a straight line.

¹³SSIs were conducted with community health workers (5), community leaders (5), traditional birth attendants (4), health workers (4), a pregnant woman (1), and a family member (1). FGDs were conducted with pregnant women (3), health workers (2), family members (2), and traditional birth attendants (2). A total of 64 people participated in the FGDs.

specifically for ANC, PNC, and childbirth deliveries. When coding about “Beliefs and opinions”, we explored women’s experiences of going to the health facilities for maternal healthcare and their reasons for going (safety, incentives) or not going (transportation, costs, experience with healthcare workers). The code “Profiles of actors” helped describe who are the main decision-making actors.

4 Descriptive statistics

In Haiti, in 2017, 15-49 year old women who had given birth in the previous 5 years had an average of 1.3 number of births and were predominantly from rural areas (62 percent), married (89 percent), had a job outside the home (55.8 percent), access to information (64.3 percent), did not have a secondary education (65.9 percent); nor any means of transportation (85 percent). Women with four ANC visits and who delivered in an institutions were less likely to be in the bottom 40 percent of the distribution (Table 1).

There were small but significant differences between women who did all four ANC visits or institutional deliveries and those who did not. Those who did were less likely to live in rural areas, more likely to have secondary education, access to information, and to be in the top 60 percent of the distribution. At the cluster level, they were also less likely to live in a mountainous cluster or a cluster with a high percentage of poor people, but more likely to have a greater share of adults with secondary education or with a greater share of women who have done at least four recommended ANC visits.

Women who accessed institutional care also lived in areas with better access to health facilities that provide ANC and normal or C-section delivery services. Women who delivered at a health institution had on average 18 health institutions providing normal delivery services in their vicinity compared to 13 health institutions providing these services overall. However, there are no differences with respect to quality of care, such as living in an area with health services providing ANC more than 18 days per month¹⁴ or being well equipped.¹⁵

¹⁴This was chosen as it corresponds to nearly every day of a working week in a month.

¹⁵We consider that a health facility is well equipped when it has at least 70 percent of the recommended equipment for ANC or delivery.

Table 1: Characteristics of 15-49 year old women who gave birth in the 5 years before the survey

Variable name - Definition	All 15-49 year old women	Women with 4 ANC	Women doing institutional delivery
Women characteristics			
Lives in rural area (%)	62.3 (0.014)	57.1*** (0.017)	46.1*** (0.021)
Age (average in years)	29.8 (0.123)	30.0** (0.140)	29.5** (0.205)
Married (%)	85.6 (0.007)	86.3 (0.008)	83.5*** (0.011)
Has secondary education (%)	44.1 (0.014)	52.9*** (0.014)	65.6*** (0.014)
Has a job outside home (%)	55.8 (0.011)	59.6*** (0.011)	59.0*** (0.016)
Has access to information (%)	64.3 (0.013)	70.0*** (0.012)	77.1*** (0.014)
Number of births (average)	1.29 (0.012)	1.2*** (0.011)	1.2*** (0.011)
Household characteristics			
Average size	5.89 (0.056)	5.8*** (0.059)	5.8* (0.067)
In bottom 40 of wealth distribution (%)	42.0 (0.018)	33.3*** (0.011)	19.8*** (0.013)
Doesn't have any means of transportation (%)	85.1 (0.009)	81.7*** (0.017)	77.7*** (0.013)
Doesn't have media (radio, TV) to access info (%)	48.6 (0.013)	41.6*** (0.014)	33.7*** (0.017)
Cluster characteristics			
Mountainous (slope greater than 10%) (%)	24.7 (0.025)	21.0*** (0.024)	19.4*** (0.027)
Hhs in the cluster that are in Q1 (%)	21.4 (0.013)	16.7*** (0.010)	9.5*** (0.007)
Women with at least 4 ANC visits (%)	66.6 (0.013)	74.1*** (0.010)	60.1*** (0.011)
Adults (15 to 65) in the cluster that have at least secondary education (%)	5.8 (0.004)	6.7*** (0.004)	8.9*** (0.006)
Health facility characteristics in cluster vicinity			
Total (average)	46.75 (2.29)	48.58*** (2.33)	61.47*** (3.17)
Providing ANC services (average)	40.81 (2.01)	42.34*** (2.05)	53.53*** (2.79)
Providing normal delivery services (average)	13.49 (0.62)	13.92*** (0.64)	17.41*** (0.88)
Providing c-section services (average)	8.19 (0.46)	8.54*** (0.47)	11.09*** (0.65)
Providing ANC services at least 18 days a month (%)	0.86 (0.01)	86.1 (0.006)	86.8*** (0.006)
Facilities w/ ANC services w/ medication for ANC (%)	25.0 (0.001)	25.2 (0.011)	23.5** (0.011)
Facilities w/ ANC services w/ equipment for ANC (%)	49.1 (0.010)	49.7** (0.011)	49.5 (0.010)
Facilities w/ delivery services w/ equipment for delivery (%)	53.5 (0.015)	54.5* (0.015)	55.1* (0.014)

Note: Linearized standard errors into brackets. Testing against pregnant women not doing the mentioned institutional healthcare. Adjusted Wald test *** significant at 1% level; ** significant at 5% level; * significant at 10% level.

New population weights for each year to reflect total women population in Haiti.

Source: Authors' estimates with EMMUS 2017

5 Findings

5.1 Bivariate analysis

First, we investigate how individual, household, cluster, and health facility characteristics affect women's prevalence of institutional care depending on the barriers identified as salient in the literature (Table 2). We use a Wald test when the differences tested are binary and a t-student test by coefficient from an OLS regression when the variables are categorical.

In terms of the decision to seek care, women with better socioeconomic conditions (such as outside employment, secondary education, information, being in the top 60 percent of the

Table 2: Prevalence of institutional care by barriers. Three-delay model.

Women Characteristics.	At least four ANC	Inst'l delivery
Decide to seek care based on socioeconomic and cultural factors		
Has job		
No	61.0 (0.016)	39.1 (0.017)
Yes	71.2*** (0.013)	44.4*** (0.016)
Has secondary education		
No	56.2 (0.017)	25.9 (0.014)
Yes	80.0*** (0.013)	62.5*** (0.014)
Has access to information		
No	56.0 (0.019)	27.0 (0.017)
Yes	72.6*** (0.012)	50.4*** (0.016)
Is independent - does not need permission		
No	54.1 (0.031)	29.0 (0.027)
Yes	67.9*** (0.013)	43.3*** (0.014)
Lives in household from bottom 40		
No	76.8 (0.012)	58.1 (0.017)
Yes	52.8*** (0.019)	19.9*** (0.013)
Identify and reach care		
Lives in rural households		
No	76.0 (0.016)	60.2 (0.022)
Yes	61.0*** (0.017)	31.1*** (0.017)
Has no transport means		
No	82.1 (0.017)	63.1 (0.024)
Yes	64.0*** (0.014)	38.4*** (0.014)
Lives in mountainous cluster		
No	70.0 (0.012)	45.0 (0.015)
Yes	56.6*** (0.032)	33.0** (0.032)
Lives in service area where 50% of facilities with ANC	18 days/month	
No	61.3 (0.043)	23.1 (0.064)
Yes	66.7 (0.013)	42.3*** (0.014)
Lives in service area where 50% of facilities with inst'l	delivery available	
No	65.7 (0.014)	39.8 (0.015)
Yes	72.3* (0.027)	54.4*** (0.042)
Receive adequate care		
Lives in service area where share of facilities with ANC	with medications is	
Low (< 25%)	66.4 (0.017)	46.6 (0.019)
Medium (25%<HC<40%)	69.8 (0.026)	39.1* (0.029)
High (>40%)	64.7 (0.031)	32.3*** (0.033)
Lives in service area where share of facilities with ANC	with equipment is	
Low (<30%)	56.8 (0.041)	25.1 (0.031)
Medium (30%<HC<50%)	68.7** (0.017)	52.0*** (0.024)
High (>50%)	67.7* (0.020)	39.0*** (0.020)
Lives in service area where share of facilities w/ deliveries	with equipment is	
Low (<35%)	62.5 (0.028)	33.2 (0.026)
Medium (35%<HC<70%)	69.1* (0.015)	48.6*** (0.020)
High (>70%)	69.8 (0.026)	39.1 (0.033)

Note: Linearized standard errors into brackets. Adjusted Wald test except for receive adequate care barriers where we use linear regression coefficients. New population weights for each year to reflect the total women population in Haiti. *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.

Source: Authors' estimates with EMMUS 2017

distribution of assets) are more likely to receive institutional care. Thus, 80 percent of women who delivered in the previous five years and had a secondary education had at least four ANC visits, compared to 56.2 percent of women with lower or no education. Better educated women

were more likely to have at least four ANC visits and to deliver in a medical institution than less educated women. Women’s empowerment seems to matter as well; women who needed permission from their husbands or fathers to go to a health center in any circumstances were less likely to get institutional care than more independent women.

In terms of the decision to reach care, physical barriers are also a deterrent. Women living in rural households, without access to transportation or in a mountainous cluster are less likely to get this type of care than urban women, women with a car or motorbike in the household, or women living in a non-mountainous cluster. These differences are the largest when looking at rural women’s likelihood to deliver in a medical institution: rural women are half as likely as urban women to deliver in a medical institution. In addition, women living near health institutions that provide ANC consultations at least 18 days per month are more likely to deliver at a medical institution than women living in a cluster where less than 50 percent of health institutions in a 10km radius provide ANC consultations 18 days a month.¹⁶ Interestingly, having access to ANC services more than 18 days per month does not affect women’s likelihood to go to all four prenatal visits. Living in a cluster where at least 50 percent of the health institutions offer normal or C-section delivery services appears to positively influence women to receive ANC consultations.

In terms of the decision to receive care, quality of care seems to matter but the relationship is not always linear. For instance, more than 65 percent of women living in clusters with fewer than 25 percent of health institutions having three types of medication attend at least four recommended ANC consultations. Similarly, women living in clusters where more than 40 percent of health institutions have three types of medication are also more likely to make at least four recommended ANC visits. At the same time, women living in a cluster where health facilities are well equipped in terms of ANC equipment encourages women to attend ANC visits but this is not the case when the health facilities are well-equipped with equipment used for delivery. Living in a cluster where 25 to 40 percent of health facilities have at least three types of ANC medication increases the likelihood of delivering in a medical institution. Similarly, women living in an area where 30 to 50 percent of health institutions are well equipped for ANC care are also more likely to deliver in a medical institution. Living in a cluster where 35 to 70 percent of institutions have 40 percent of delivery equipment appears to encourage women to deliver in a medical institution. While insignificant, fewer women would be encouraged to deliver in a medical institution if more than 70 percent of the latter were well-equipped for delivery.

5.2 Econometric results with the multilevel model

To perform the multilevel regression, we start by estimating grand mean centered variables to be able to make inferences on the absolute effect of women and household-level characteristics and on cluster- and service area-level variables (Sommet and Morselli, 2017). After confirming that there is enough variability across clusters to justify the use of a multilevel model, we check the effect of lower-level variables across clusters. Given that including residual terms associated with each individual level (mother is head, mother has secondary education) does not significantly improve the fit of the regression, we use a constrained form. The best model for each outcome of interest is reported in table 3.¹⁷

For all outcomes, mother-level variables seem to matter more than cluster or service level variables when explaining access to institutional care (Table 3). When controlling for other

¹⁶All clusters have at least one health facility providing ANC services in a 10km radius which is the service area.

¹⁷The table reports the Odds Ratios, that is the odds of the outcome for women with a certain characteristic relative to those without it. Thus is the case of having at least four ANC visits, pregnant women in the bottom 40 are 0.755 times less likely to have at least four ANC visits compared to pregnant women in the top 60

Table 3: Determinants of the use of maternal healthcare

Variables	At least four ANC		Institutional delivery	
	OR	CI	OR	CI
Women' and hhs' characteristics				
Head	0.673	(0.209 2.170)	2.614	(0.620 11.02)
Spouse	1.217*	(1.018 1.455)	0.914	(0.762 1.096)
Age	1.056***	(1.041 1.072)	1.048***	(1.033 1.064)
Number children	0.741***	(0.661 0.831)	0.552***	(0.488 0.623)
Squared number children	1.011*	(1.001 1.021)	1.037***	(1.026 1.048)
Job outside	1.286***	(1.117 1.481)	1.125	(0.970 1.305)
Secondary edu	1.664***	(1.404 1.972)	1.881***	(1.600 2.213)
Access information	1.260**	(1.071 1.483)	1.130	(0.935 1.366)
Permission	0.839	(0.654 1.076)	0.718*	(0.530 0.973)
Bottom 40 (B40)	0.755*	(0.605 0.943)	0.609***	(0.486 0.762)
No transportation	0.856	(0.678 1.082)	0.755**	(0.616 0.926)
Cluster characteristics				
Mountainous	0.868	(0.733 1.028)	0.910	(0.722 1.146)
Share adults w/ secondary edu is				
Medium	0.719	(0.501 1.032)	1.084	(0.723 1.625)
High	0.734	(0.467 1.153)	1.027	(0.647 1.630)
Share hhs in bottom quintile is				
Medium	1.163	(0.926 1.461)	0.630***	(0.481 0.824)
High	1.266	(0.985 1.626)	0.449***	(0.329 0.612)
Share women w/ 4 ANC visits is				
Medium	3.120***	(2.652 3.671)	1.601***	(1.257 2.040)
High	11.10***	(8.874 13.88)	2.368***	(1.816 3.089)
Health centers characteristics				
Dum_ANC18dys	0.803	(0.482 1.338)	1.995	(0.886 4.490)
Dum_instDEL	0.941	(0.710 1.246)	1.131	(0.834 1.532)
Share facilities w/ ANC with	medications	available is		
Medium	1.005	(0.830 1.217)	0.721**	(0.562 0.924)
High	1.061	(0.898 1.255)	0.837	(0.668 1.047)
Share facilities w/ ANC with	equipment	available is		
Medium	0.924	(0.727 1.173)	0.956	(0.684 1.337)
High	0.940	(0.759 1.166)	1.019	(0.750 1.385)
Share facilities w/ delivery with	equipment	available is		
Medium	1.048	(0.883 1.243)	0.968	(0.773 1.212)
High	1.126	(0.927 1.366)	1.109	(0.857 1.435)
Interaction factors				
Head + dum_ANC18dys	1.547	(0.477 5.017)	0.355	(0.0837 1.504)
Perm + dum_instDEL	1.090	(0.516 2.300)	1.509	(0.700 3.252)
B40 + dum_instDEL	0.991	(0.655 1.500)	1.788*	(1.108 2.885)
Access + C_secedu=MEDIUM	1.517	(0.984 2.338)	1.146	(0.750 1.749)
Access_info + C_secedu=HIGH	1.032	(0.634 1.680)	1.503	(0.952 2.375)
Constant	0.803	(0.470 1.373)	0.319**	(0.143 0.713)
Random intercept	2.97e-08	(0 .)	0.552***	(0.451 0.675)
N	4896		4899	

Note= ***p<0.001; **p<0.01; *p<0.05. Reference categories are indicated in parentheses after the names of the characteristics being considered. OR: odds ratios; CI: confidence interval.

Dum_ANC18dys: dummy if ANC available at least 18 days per month.

Dum_instDEL: dummy if institutional delivery available to women in the cluster.

C_secedu: share of adults with secondary education.

Source: Authors' estimates with EMMUS 2017

variables across clusters, older mothers, mothers with a job outside their house, mothers with at least secondary education, and mothers with access to information are more likely to make at least four ANC visits than others. However, neither having a job outside the house nor having access to information increases a mother’s odds of delivering in a health institution. These four characteristics either directly or indirectly relate to experiences that would encourage women to seek care (ANC or institutional delivery). They are likely to indicate that mothers are more knowledgeable about the risks associated with their pregnancy as women are more educated and, as a result, more likely to make informed decisions about their healthcare. In addition, older women might be more aware that risks increase with age, helping explain why they are more likely to consult with or deliver in a health institution. Finally, women’s networks are likely to expand with employment in activities outside their house; women could have met more women throughout their lives who had faced such risks or had read about such cases.

If a woman is the spouse of the head of the household, she is more likely to attend at least four ANC visits. However, if a woman is the head of the household, her probability of attending at least four ANC visits does not increase. This may be because husbands encourage their wives to seek care (as confirmed in the qualitative data analysis) and may provide financial or other types of support to help them access and receive care. However, the effect disappears when considering the decision to deliver in a health institution.

We find that having children discourages women from attending four ANC visits or delivering in a health institution, and this effect becomes even stronger as women have more children. There are two potential reasons for this. First, women who have gone through pregnancy and delivery before might feel more knowledgeable about what happens during pregnancy and childbirth and have less of a need for consultation. Second, women need to make arrangements for someone to take care of their children while they attend these health services. Poverty, as measured by being in the bottom 40 of the wealth index distribution, decreases the odds of doing at least four ANC visits and, even more importantly, to deliver in a health institution supporting the hypothesis that poorer women are less likely to seek care. Even when ANC visits are free, additional costs (blood tests, medicines) and also hidden costs (care of other children, transportation, medications) can be a hindrance for poorer women. These costs might be even more in the case of an institutional delivery.

The lack of means of transportation decreases women’s odds of delivering in a health institution, even when controlling for accessibility with the existence of ANC services within 10km of the woman’s cluster. Women without transportation means are less capable to reach care than those with transportation means. Finally, women who need permission to attend normal health visits are less likely to deliver in a health institution. This suggests that empowering women to make other health decisions could significantly impact their decisions to seek prenatal and delivery care at a health institution.

Turning to cluster-level effects, living in a cluster where a large share of women that attend at least four ANC visits encourages women to do the same and to deliver in a health institution. This result highlights the influence of neighborhood and learning effects from living with other women who have already gone through the experience of ANC. Cluster-level effects are more important when looking at institutional deliveries. Women in these clusters might be more likely to be already seeking care, and neighborhood encouragements can provide them with logistic support to reach and receive care. An unexpected effect is that women living in a service area where ANC services have medication are less likely to deliver in a health institution. This may be because women feel they are doing well since ANC visits did not reveal any problems, and they do not think it is worth going to a health institution to deliver, as it would be confirmed by the confidence bias in the qualitative analysis. Cluster-level poverty status decreases the odds for women to deliver in a health institution, possibly

due to neighboring effects.

5.3 Qualitative findings

Using Thaddeus and Maine’s framework, we analyzed the qualitative data collected in the field and identified five key structural and behavioral barriers that hinder pregnant women from attending institutional care (Table 4). First, pregnant women believe there is no need to seek care as they do not think any wrong would happen to them (optimism bias- confidence that everything will be fine-). If they are not experiencing pain and their pregnancy appears to be normal, some women skip ANC consultations. In addition, pregnant women in our study expressed a preference for home birth. Only in case of complications during labor or when starting to feel pain they acknowledge the need to seek institutional care. As a pregnant woman in 1^{ère} Chalon explained: *“I had given birth at home, now that I have started to feel great pain, I am going to a hospital”* This was confirmed by health workers, such as one from Fonds-des-Nègres who noted: *“If they notice that everything is fine, they decide not to come”*.

Second, the perceived high and uncertain cost of accessing institutional care is an impediment for women to seek care (economic constraints/uncertainty aversion). Women would skip ANC visits, especially the first few months, because of a lack of economic means. For example, a pregnant woman from Fonds-des-Nègres stated: *“After 5 months I make my first prenatal visit. Before, I did not have money”*. A family member in 1^{ère} Chalon confirmed that sometimes women cannot go to the hospital because of the price of services. Indeed, delivering at a healthcare center is generally slightly more expensive than giving birth at home with a matron. However, the uncertainty of the total cost they would have to pay for the care is critical in discouraging pregnant women. Unlike the fixed cost of the services of a matron, ANC visits and institutional delivery total costs are usually unknown (every extra is paid apart). As a pregnant woman in Fonds-des-Nègres explained: *“The cost of delivery is 1000 gourdes, but the cost of materials is also your responsibility. For example, you have to buy the thread to sew if you were cut during delivery”*.

Third, while the multilevel model suggests that the availability of health centers and terrain do not seem to matter, women report being discouraged to reach care because of transportation safety and costs (transportation constraints). Women reported not being able to afford transportation. Instead, they decide to be screened by matrons, who often visit them at home. Because of the lack of available cars in Haiti, women reach health centers by motorcycles. This can increase the risk of miscarriage given the bad state of roads, as it was expressed by a pregnant woman in the 1^{ère} Chalon: *“We do not have a road accessible to cars to go to the hospital. The roads are bumpy and sometimes the baby is already dead before being born”*. When in labor, especially at night when means of transportation are scarcer, women choose to give birth at home with the help of a matron, as the logistics to reach a health center are even more complicated. As a pregnant woman in the 1^{ère} Chalon explained, *“If you have pain in the middle of the night, you do not have time to go to the hospital. While the matron can help you give birth”*.

Fourth, while some pregnant women described having good experiences with medical staff, others described an apathetic welcome during ANC visits and felt that medical staff did not really care about them experiencing obstetric violence (disrespectful care). More concretely, they felt judged by nurses during ANC visits who ask them many questions at registration, including some on their sexual habits. As reported by women in 1^{ère} Chalon: *“For example, are we married? Do we live with our husband? [...] Do we have other boys outside our home? We are asked how many men we are in relation to”*. Pregnant women find these questions intrusive and uncomfortable. In addition, pregnant women have a general perception of bad-quality care, perhaps sustained by past experiences or stories heard experienced by others.

For example, a pregnant woman in Fonds-des-Nègres explained that a medical staff physically and verbally mistreated her: *“The hospital staff [...] say with a funny tone: ‘Madame, open your feet.’ Sometimes they hit us in the buttocks which hurt us”*. Additionally, women may be left alone during labor and told to call medical staff only when they see the baby’s head, which can result in women giving birth alone.

Fifth, pregnant women may decide not to receive institutional care because they do not perceive the model of care as respectful (discomfort with the model of care). Women may report not liking the idea of giving birth alone, without the support of their families. Testimonies from different women show that women feel uncomfortable with the tools and birthing seat used at hospitals, for example a woman in 1^{ère} Chalon described: *“I do not want to give birth at the hospital because in the hospital, they settle the pregnant women on a seat called ti-bourrique, and we do not have the support of our relatives”*. Furthermore, some women may be scared by the noise of medical instruments or the medicines they receive, such as Pitocin¹⁸. For example, this woman in 1^{ère} Chalon described her experience as follows: *“I do not like when we are given chisel, and pitosin. We think that pitosin [Pitocin] can drive a person crazy, because a lady was beating her buttocks after taking pitosin”*. The role played by husbands in encouraging women to attend institutional care had not been anticipated at the start of the work. We found that husbands are the ones encouraging pregnant women to seek, reach, and receive institutional care, especially prenatal care. Husbands appear to be convinced of the benefits of prenatal care. As a woman in 1^{ère} Chalon stated: *“My husband sent me [to the doctor] in the first month”*. This seems to be a matter of social status and of obligation — if one has the resources, they should give them to their wife so that she can go to the hospital.

¹⁸Pitocin is a hormone that is used to induce labor or strengthen uterine contractions, or to control bleeding after childbirth. It is also used to stimulate uterine contractions in a woman with an incomplete or threatened miscarriage.

Table 4: Structural and behavioral barriers identified in the qualitative analysis

3-delay model	Barriers	Type of care	
		ANC	Institutional Delivery
Seek	Optimism bias	No need to attend ANC visits, unless they feel pain.	Home birth is generally preferred, unless the case gets complicated or they start feeling pain, noted as reasons to go to the health center.
	Economic constraints/uncertainty aversion	ANC are perceived as expensive and final cost is usually uncertain; apart from the visit, they must pay for any exam they are asked to take.	Institutional delivery is slightly more expensive than home delivery and is uncertain; they must pay for any medicines and materials used.
Reach	Transportation constraints; distance, cost, and safety	Hospitals are far and transportation cost is often prohibitive.	Limited vehicles, bad state of roads, and there is often, especially at night, no time to reach the health centers as newborns arrive.
Receive	Disrespectful care	Apathetic welcome from health staff, especially nurses, who ask many questions, including some on their sexual habits, which may make them feel uncomfortable.	Stories heard and past experiences of physical and verbal mistreatment from health staff, as well as being abandoned during labor.
	Discomfort with approach to delivery		Dislike the approach to deliver adopted at healthcare centers because they do not like to give birth without the family, they are displeased with the birthing seat, scared by the materials used and medicines given, and annoyed by being asked to walk before giving birth.

6 Discussion and conclusion

This paper brings together multiple sources of data to uncover structural and behavioral barriers that discourage or prevent women from utilizing institutional care during pregnancy and childbirth. Evidence from quantitative and qualitative findings are brought together to investigate how structural factors, such as poverty, affordability, and availability of transport, and behavioral factors, such as uncertainty aversion, optimism bias, and discomfort with the model of care, discourage women from seeking, reaching, and receiving care.

The quantitative analysis indicates that affordability is a barrier when seeking care. There is a strong negative correlation between poverty status and ANC attendance or institutional delivery. Qualitative findings confirm that the uncertainty around total hospital costs discourages women from seeking care. Even though ANC visits are supposedly free, if hospitals are far, transportation costs can be high and women may find out at the time of their visit that there are additional costs for further exams and medications. The uncertainty regarding the full cost is particularly problematic for poor women, on a very tight budget. In addition, qualitative findings reveal that women suffer from optimism bias as they may underestimate

the probability of having problems during their pregnancy. Unless they are in pain, they do not seek care. Optimism bias seems to decrease with age, but women with children are less likely to attend ANC or to deliver in a health institution.

Lack of transportation is an important barrier to reaching care. Women without access to transportation are less likely to reach maternal healthcare services. Conversations with women revealed that, without access to transportation, they often have to walk long hours or rely on motorbikes or tap-taps (public buses or pick-up trucks). While common in urban areas, motorbikes or tap-taps are rather scarce in rural areas. Moreover, given the poor conditions of rural roads women often fear for their own safety and that of their baby. As is the case with seeking care, the high transportation costs may prevent them from going to healthcare centers despite intending to. Structural barriers are real, and women's concerns about their impact are often rational and warranted.

Finally, when receiving care, the way hospitals and medical staff make women feel, and the perceptions around the quality of care, matter as much as the care itself. Qualitative findings reveal that women often perceive the care they receive from nurses and doctors as disrespectful. Women are usually not welcomed or treated as they would like. Moreover, women dislike the model of care provided in hospitals, finding that they do not respect local customs such as choosing the birthing positions or being surrounded by family members for labor. Quantitative data shows that women living in clusters where a large share of women have attended ANC consultations are more likely to do the same, suggesting that peer effects or role models may trigger knowledge sharing about their experiences in a positive manner. It is important for hospitals and medical staff to prioritize good communication and respectful treatment of patients to ensure that women feel comfortable seeking the care they need.

Surprisingly, interviews revealed that husbands may play a key role in encouraging their wives to attend institutional care. Not only are they often convinced of the benefits, but husbands also seem to care for the social status attached to being able to afford institutional care.

These findings indicate that interventions solely focused on improving access to health centers (through roads or by setting up new health centers) and on decreasing costs although necessary, might not be sufficient in achieving the desired outcomes. The presence of optimism bias requires that women be made aware of the risks and complications related to pregnancy and delivery. Thus, for example targeting younger women with powerful stories or vignettes that show all potential risks, even when there is no pain, could be effective. To reduce or avoid discomfort with the model of care and ensure respectful practices, health workers should undergo awareness training on how to welcome and treat patients and how to adapt the care to local cultural norms that include different delivery modalities, such as delivering in a seat position. Pregnant women could be offered a "promise contract" where medical staff agrees to her wishes and requirements during labor. Moreover, it is important for medical staff to prioritize good communication in terms of what to expect from institutional maternal healthcare services and the different medicines and techniques that could be used way ahead of the delivery date. Alternatively, involving women from the community to share their experiences at health institutions could be key to shaping pregnant women's beliefs and expectations of the type of care they will receive at health institutions. As cost uncertainty seems to be a key barrier, mechanisms to increase cost predictability from the beginning of pregnancy could help.

Finally, while interventions should target pregnant women, involving their partners could be beneficial, as they seem to both help shape their decisions and support institutional care. The proposed recommendations are contextual and relatively low-cost compared to structural ones, and thus may have a higher potential for impact at a lower cost.

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