

# Perspectives, Decision Making, and Final Mode of Delivery in Pregnant Women With a Previous C-Section in a General Hospital in Peru: Prospective Analysis

Maria Lazo-Porras, MD, Angela M. Bayer, MHS, PhD, Ana Acuña-Villaorduña, MD, Claudia Zeballos-Palacios, MD, Deborah Cardenas-Montero, MD, Michael Reyes-Diaz, MD, Monica Naranjo-Caceres, MD, German Malaga MD, MA

**Objective:** Explore the perspectives, decision-making process, and final mode of delivery among pregnant women with a previous C-section (Cesarean section) in a general public sector hospital in Lima, Peru. **Methods:** A qualitative prospective study using semistructured interviews at two time points in the outpatient obstetrics and gynecology clinic of a public sector, university-affiliated reference hospital in Lima, Peru. Seventeen adult pregnant women with a prior C-section who were deemed by their attending obstetrician to be candidates for a trial of labor were interviewed. The first interview was between 37 and 38 weeks of pregnancy, and the second interview was 24 to 48 hours after delivery. Main outcome measures: Predelivery decision-making process and final mode of delivery. **Results:** Among the 17 participants, about half (9) of the participants stated that the physician explained

that they had two approaches for delivery, a trial of labor after C-section (TOLAC) or elective repeated C-section (ERCD). Two women stated that their respective providers explained only one option, either an ERCD or TOLAC. However, 6 women did not receive any information from their providers about their delivery options. Of the 10 participants that decided TOLAC, 8 ended up having a C-section, and of the 7 patients that had planned an ERCD, 1 ended up having a vaginal delivery. **Conclusion:** Many participants affirmed that they made the decision about their approach of delivery. However, most of the participants that decided a TOLAC ended up having a C-section because of complications during the final weeks of pregnancy or during labor. **Key words:** decision making; mode of delivery; qualitative study; Cesarean section; VBAC. (MDM Policy & Practice XXXX;XX:xx-xx)

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Address correspondence to Maria Lazo-Porras, MD, CONEVID Unidad de Conocimiento y Evidencia, Universidad Peruana Cayetano Heredia, Av. Honorio Delgado 430, San Martin de Porres, Lima, Peru; e-mail: maria.lazo@upch.pe.

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Shared decision making (SDM) is a model of practice for decision making in which patients are supported by their physicians in making their health care choices while taking into account their health-related and overall values and preferences.<sup>1</sup> Although considered the ideal approach in the clinical encounter, the implementation of SDM is very challenging, particularly in populations with low literacy, in settings where a paternalistic model is still preferred, or in settings where there is limited or no access to decision-making aids.<sup>2</sup>

Decision making regarding the mode of delivery in pregnant women with a prior C-section (Cesarean section) who are eligible for a trial of labor (TOLAC) represents a challenge for both the patient and the physician<sup>3</sup> and one that could benefit from the SDM



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model. International guidelines suggest that physicians should share all information regarding mode of delivery by the eighth month of pregnancy, taking into account individual risk factors and highlighting the benefits and risks of both a TOLAC or elective repeat cesarean delivery (ERCD). Physicians should then reevaluate the patient and verify the understanding of the provided information to reassess the patient's decision making in the following encounters and strive to honor her final choice.<sup>4-6</sup>

Past quantitative and qualitative research has explored pregnant women's preferences regarding mode of delivery. A systematic review of women's preferences for C-section found that the overall pooled preference for C-section was 15.6%. Higher preference for C-section was reported in women with versus without a previous C-section (29.4% vs. 10.1%) and those living in middle- versus high-income countries (22.1% vs. 11.8%). This review included 10 studies from Latin America, all of which were in Argentina, Brazil, and Chile.<sup>7</sup>

There are few publications with information about whether the mode of delivery changed during labor. Previous studies mainly focus on women's level of satisfaction after an emergency C-section.<sup>8-10</sup> One study in Scotland found that a third of the women with emergency C-sections expressed negative feelings toward their delivery, compared with 13% of those undergoing elective C-sections.<sup>8</sup> A study in Brazil reported that while 83% of women who had a C-section agreed that they would have preferred a vaginal delivery, at the same time, 60% to 70% felt happy to have had a cesarean.<sup>9</sup>

There have also been a few qualitative studies about Latin American women's general perspectives regarding C-sections, independent of women's previous C-section experiences.<sup>10-13</sup> However, these studies did not explore in depth the complexities of SDM regarding delivery mode. Also, most of the studies explored predelivery intentions regarding approach of delivery (TOLAC vs. ERCD), but did not compare predelivery decision and final mode of delivery (vaginal vs. cesarean). It is important to mention that TOLAC does not guarantee a vaginal delivery after cesarean (VBAC). Only 60% to 80% of women who are considered candidates for a TOLAC to attempt VBAC will have a successful vaginal birth.<sup>14</sup> Additionally, past studies have not explored the reasons, feelings, and impact on women that decided on a certain mode of delivery (TOLAC vs. ERCD) prior to the birth experience and had a different mode of delivery because of complications.

In Latin America, there are no studies that evaluate the perspectives and involvement of pregnant women with previous C-sections in the decision-making process regarding the approach of delivery for their subsequent pregnancies. This information is crucial not only for informing future clinical practice guidelines and practice regarding mode of delivery during pregnancy but also for guiding the overall implementation of SDM and for other complex topics like pregnancy decision making and change in the final mode of delivery in our health care system.

Therefore, this study aimed to explore the perspectives regarding the preferred approach of delivery, decision-making process, and final mode of delivery among pregnant women with a previous C-section in a general public sector hospital in Lima, Peru.

## METHODS

### Study Design, Setting, and Participants

We conducted a qualitative study using semi-structured interviews between March and June of 2013 at the outpatient obstetrics and gynecology clinic at Hospital Cayetano Heredia (HCH). HCH is a 420-bed tertiary-level, public sector, university-affiliated Ministry of Health hospital located in the northern area of Lima, Peru. It is the primary reference hospital for the area and serves a population of approximately 3.5 million people who are mainly in the low-income category.

Participants were recruited from the outpatient obstetrics and gynecology clinic of HCH where 4689 births were reported in 2011. Almost half of these births (45%) were C-sections, and 36% of these C-sections were repeat C-sections. Another study reported that 21% of births in public hospitals in Peru were C-sections, a rate that is most likely lower since HCH is a reference hospital.<sup>15</sup> Eligibility criteria for this study were Spanish-speaking, adult pregnant women with maximum a prior C-section who were deemed by their attending obstetrician to be candidates for a trial of labor, gestational age >36 weeks, and without mental health problems. Since women that have prior C-sections and are eligible for a trial of labor are a relatively small group, the study team alternated days of the week to visit the outpatient clinic to identify and approach eligible patients. We aimed to recruit a sample of 15 women, as we believed this number would allow us

to achieve saturation of relevant themes and also allow for losses to follow-up. Patients that were lost to follow-up were excluded. Four patients did not accept participation in the study and one participant was lost to follow-up during the study period.

For our study we defined “predelivery decision regarding mode of delivery” as the mode of delivery decided by participant and/or physician during ambulatory visit prior to delivery. These variables were TOLAC or ERCD. Also, we define “the final decision regarding mode of delivery” as TOLAC or ERCD/CD, based on the intended mode of delivery the day the participant was hospitalized. Finally, we defined the “final mode of delivery” as VBAC, ERCD, or CD. Failed TOLAC was defined as participants who were undergoing TOLAC but ended up having a CD.

### Data Collection Activities

We asked participants to report their age, education level, and gestational age. Using a semistructured guide, we interviewed participants on two separate occasions. The first interview was immediately following recruitment and informed consent, between 37 and 38 weeks of pregnancy, and the second interviews was 24 to 48 hours after delivery. During the first interview, we explored the motives, perspectives, and experiences related to the previous C-section and the perspectives and preferences regarding the current delivery, including the decision-making process to decide the type of delivery, feelings about the decision, and knowledge about the risks and benefits of vaginal versus C-section delivery. The second interview also explored women’s feelings about the actual delivery mode and the reasons for changes when relevant. All interviews were audio-recorded.

### Data Analysis

After verbatim transcription of the interviews, two authors (MLP and AMC) read the interviews and created an initial codebook. Then, MLP and AMC tested the initial codes, agreed on a coding style and the final codebook, and coded the remaining transcripts. Finally, all authors identified patterns in perspectives and experiences across participants. For age and gestational age, median and interquartile ranges (IQR) were calculated, and for educational level, frequencies were calculated.

### Ethics

All participants were informed of the study objectives and procedures, including two interviews and audio recording, and provided written consent prior to initiating their participation. The institutional review board of HCH approved the study.

### RESULTS

A total of 17 participants were interviewed at the two time points. Median age was 27 years (IQR = 24–31). Two had incomplete high school, 13 had complete high school, and 2 had at least some superior education. The median gestational age at recruitment was 38 weeks (IQR = 37–38).

Table 1 presents the following information for each participant: 1) for the previous C-section, both the reason for the C-section and the participant’s feelings about it; and 2) for the current delivery, (a) the predelivery decision-making process, whether the participant and/or provider made the decision, and the participant’s preference regarding the mode of delivery; and (b) the final mode of delivery and, if there was a change between the participant’s preference and the final mode, the reason(s) why.

TOLAC was the predelivery decision regarding mode of delivery by 59% (10/17) of the patients, but only 50% (5/10) of them went into TOLAC at admission (Table 2). Among patients who preferred ERCD before admission, 1 patient (14%) went into TOLAC and underwent vaginal delivery. Failed TOLAC was found in 50% (3/6) of patients. Among all participants, 47% (8/17) ended up having a delivery that corresponded to the mode of delivery they preferred predelivery (Table 3).

### Previous C-Section: Reason and Feelings

All of the participants knew the reason for their previous C-sections and provided information about how they felt about the experience. Four participants mentioned pre-eclampsia, three participants macrosomia, and three participants fetal distress. Less common causes were breech presentation, nuchal cord, membrane rupture and fever, and more than 40 weeks of gestation. Most of the participants mentioned that they felt worried and/or scared, mainly since it was their first baby or since they were nervous about having a surgery and the pain associated with it (see Table 1).

**Table 1** Characteristics of Study Participants, Information about Previous C-section and Current Pregnancy

No.	Nickname, Age in Years	Previous C-Section			Current Pregnancy			Reason for Change in Delivery Mode
		Reason	Feelings (Summary)	Predelivery-Decision Making Process	Predelivery Decision	Predelivery Preference for Mode of Delivery	Final Mode of Delivery	
1	Elizabeth, 27	Breech presentation	<i>Worried and scared because it was my first baby</i>	Physician did not explain both delivery options	Participant made the decision	TOLAC	CD	Participant did not start labor
2	Rocio, 27	Macrosomia (large baby)	<i>Calm because the doctor told me it was nothing risky</i>	Physician only explained risks of a repeat C-section	Participant made the decision	ERCD	ERCD	No change
3	Luisa, 24	Pre-eclampsia	<i>Afraid and I was only 17 years old, but my mom talked to me and calmed me down</i>	Physician explained both delivery options	Participant made the decision	ERCD	ERCD	No change
4	Giovana, 39	Nuchal cord	<i>Afraid because I had never had surgery before</i>	Physician only explained risks of vaginal delivery	Joint: physician indicated C-section due to gestational diabetes, and woman agreed	ERCD	ERCD	No change
5	Lorena, 30	Macrosomia	<i>Normal because I knew that the baby was big</i>	Physician explained situation (baby's size and weight) and both delivery options	Joint: physician indicated C-section due to macrosomia, and woman agreed	ERCD	ERCD	No change
6	Monica, 32	>40 weeks gestational age	<i>Worried because I had been told that a C-section is painful</i>	Physician did not explain both delivery options	Participant made the decision	TOLAC	CD	Oligohydramnios (reduced amount of amniotic fluid)
7	Nancy, 25	Fetal distress	<i>Scared because I wanted a normal delivery because it hurts only during delivery</i>	Physician explained both delivery options and allowed 1 week for a vaginal delivery	Physician indicated C-section due to risk of fetal distress, woman disagreed	TOLAC	TOLAC/CD <sup>a</sup>	Fetal distress
8	Carla, 27	Nuchal cord	<i>Scared because I was told that if I wanted to save the life of my daughter, I had to do it</i>	Physician did not explain both delivery options	Participant made the decision	TOLAC	TOLAC/CD <sup>a</sup>	Fetal distress
9	Jessica, 20	Membrane rupture and fever	<i>Nervous because it is an operation and the epidural is a bit dangerous</i>	Physician did not explain both delivery options	Joint: physician indicated C-section due to macrosomia, and woman agreed	ERCD	TOLAC/VBAC <sup>b</sup>	Participant started labor and surgery room was not available
10	Telma, 24	Breech presentation and pre-eclampsia	<i>Afraid because it was my first baby and it is an operation; you can lose blood and sometimes die</i>	Physician did not explain both delivery options	Physician indicated C-section due to transverse lie presentation, woman disagreed	TOLAC	ERCD	Transverse position
11	Rosario, 38	Macrosomia	<i>Normal; it was better for me because the physician gave</i>	Physician explained both delivery options	Participant made the decision	ERCD	ERCD	No change

(continued)

Table 1 (continued)

Previous C-Section			Current Pregnancy					
No.	Nickname, Age in Years	Reason	Feelings (Summary)	Predelivery-Decision Making Process	Predelivery Decision	Predelivery Preference for Mode of Delivery	Final Mode of Delivery	Reason for Change in Delivery Mode
12	Claudia, 35	Fetal distress	<i>me anesthesia and I did not feel pain I just wanted to have my baby, because I lost a baby before and did not want to lose this baby</i>	Physician explained both delivery options	Participant made the decision	TOLAC	TOLAC/VBAC <sup>a</sup>	No change
13	Hilda, 24	Pre-eclampsia	<i>Scared because I did not know what it was like</i>	Physician explained both delivery options	Participant made the decision	TOLAC	TOLAC/CD <sup>a</sup>	Excessive pain with vaginal delivery
14	Cynthia, 28	Membrane rupture and fetal tachycardia	<i>Calm because at least I was in the hospital, I felt protected</i>	Physician explained both delivery options	Participant made the decision	TOLAC	ERCD	Participant was at 40 weeks of gestational age
15	Paola, 31	Fetal distress	<i>Bad because I wanted a vaginal delivery</i>	Physician explained both delivery options	Physician indicated C-section due to risk of not starting labor, and woman disagreed	TOLAC	TOLAC/VBAC <sup>a</sup>	No change
16	Sofia, 28	Pre-eclampsia	<i>I did not feel calm; I felt scared</i>	Physician did not explain both delivery options	Participant made the decision	TOLAC	ERCD	Participant was at 42 weeks of gestational age
17	Rosa, 23	Pre-eclampsia	<i>Normal, at that time</i>	Physician explained both delivery options	Participant made the decision	ERCD	ERCD	No change

Note: CD = cesarean delivery; ERCD = elective repeated cesarean delivery; TOLAC = trial of labor after cesarean delivery; VBAC = vaginal birth after cesarean.  
a. "Final decision regarding mode of delivery"/"Final mode of delivery."

**Table 2** Predelivery Decision Versus Final Decision Regarding Mode of Delivery

Final Decision Regarding Mode of Delivery	TOLAC, <i>n</i>	ERCD, <i>n</i>	Total, <i>n</i>
TOLAC	5	1	6
ERCD or CD	5	6	11
Total	10	7	17

Note: CD = cesarean delivery; ERCD = elective repeated cesarean delivery; TOLAC = trial of labor after cesarean delivery.

**Table 3** Predelivery Decision Regarding Mode of Delivery and Final Mode of Delivery

Final Mode of Delivery	TOLAC, <i>n</i>	ERCD, <i>n</i>	Total, <i>n</i>
VBAC	2	1	3
ERCD or CD	8	6	14
Total	10	7	17

Note: CD = cesarean delivery; ERCD = elective repeated cesarean delivery; TOLAC = trial of labor after cesarean delivery; VBAC = vaginal birth after cesarean.

### Current Pregnancy: Predelivery Decision-Making Process

Among the 17 participants, about half (9) participants affirmed that their physician explained that they had two possible modes of delivery, TOLAC or ERCD. Two women stated that their physician explained only one option, either TOLAC or ERCD. However, 6 women did not receive any information from their physicians about their delivery options (Table 1).

Yes, during my visit, the physician told me that I could have either a vaginal or a C-section delivery. (Participant 3)

The physician told me that I could have a vaginal or C-section delivery, but I decided to have a C-section and I am doing the paperwork. (Participant 11)

Nobody informed me if I have options. I want a vaginal delivery because I want to know what it is like. (Participant 10)

Most (11) participants stated that they made the decision regarding their upcoming delivery on their own. Six participants reported that their physician indicated a second C-section. Of these six

participants, three—including one with gestational diabetes and two with macrosomia—agreed with their physician and felt their decision was shared. The other three—including one whose baby was in transverse lie position, one with risk of fetal distress, and one with risk of not starting labor—disagreed with their physician and felt that they did not participate in the decision-making process and physician made the decision. Regardless of the degree to which the decision-making process was shared, most of the participants said that they felt calm because they had the experience of the previous C-section.

Reasons: Physicians decided. They said that [I needed a C-section] because I have gestational diabetes and cannot risk having a natural delivery.

Feelings: I feel calm because I already went through that [a C-section] and that's what I want. (Participant 7, preferred vaginal delivery, physician decided C-section)

Reasons: I made the decision . . . because my other son is 5 years old. If I have a C-section, I will stay in bed and I cannot take care of my other son.

Feeling: A little scared by the pain and because it will be something new for me. In the previous birth I received analgesia and I had no pain. (Participant 1, preferred vaginal delivery, made decision herself)

### Current Pregnancy: Predelivery Preference and Feelings

Seven women mentioned a predelivery preference of a second C-section for their current pregnancy, primarily since they had a good experience with their previous C-section or because their physician indicated a C-section.

Reasons: Because I think that when I have [labor] pain, my blood pressure will increase. So I told the physician that I would like to have a C-section again.

Feelings: A little nervous but I already know how the C-section is. (Participant 3)

Ten women wanted TOLAC for their current pregnancy. Participants who preferred a vaginal delivery mentioned that they did not have a good previous

C-section experience since they felt pain and a prolonged recovery time, which complicated their daily responsibilities at home. Most of them felt calm about their preference for TOLAC, although some of them mentioned fear since it would be their first experience of vaginal delivery.

Reasons: I was not satisfied with my previous C-section because they sewed me badly, just “like a pig” and I was very disappointed with the C-section. I definitely do not want a C-section for any reason at all. I’ve talked to the doctor and he told me there was no problem so far, that I could have a vaginal delivery.

Feelings: The truth is that I am really scared. Things are going well so far and I’m ready to have my vaginal delivery . . . but I hope that I don’t have any last minute complications because I do not want to have a cesarean. (Participant 12)

Reasons: Well, I was told that I could have a normal delivery, but they already scheduled me for a C-section anyway because if my [labor] pains do not come, I will have a C-section. I decided vaginal delivery because the recovery after a C-section takes like three months, is more painful and I have another child to take care of.

Feelings: [I feel] fine. I have another daughter that I have to take care of. I think it’s the best. (Participant 15)

### **Current Pregnancy: Predelivery Knowledge About Risks and Benefits of Vaginal Delivery Versus C-Section**

Regarding the risks of vaginal delivery, eight participants could name at least one risk: seven mentioned pain, vaginal tears, and risk of infection, and only one mentioned uterine rupture. However, the remaining nine participants were unaware of any risks.

It [vaginal delivery] could break the uterus. If the baby is too big, it could also not be possible to give birth. (Participant 3)

Regarding the benefits, most participants (11) said that vaginal delivery has a faster recovery than a C-section and that women feel pain for less time. Six participants did not know about any benefits.

The pain passes quickly and there is no wound. (Participant 5)

Most participants (15) mentioned at least one risk of C-sections, for example, infection of the scar, risk of the surgery and anesthesia, longer recovery time, and increased risk during subsequent pregnancies because of the scar.

The wound can become infected and the recovery time is long. The wound could open and at least one month of rest is required. It could give me fever, if I don’t take care of myself. (Participant 2)

Eleven participants mentioned the following benefits of C-sections, that the procedure is fast, less painful, and that the baby does not suffer. Six participants did not recognize any benefits.

The benefit is that there is no pain. A caesarean section is easier and has less pain. (Participant 11)

### **Current Pregnancy: Postdelivery Outcomes, Reasons, and Feelings**

From the 17 participants, 8 participants had the same delivery procedure that they had chosen previously. All had positive feelings since the participants who had preferred a vaginal delivery felt pleased about having the desired delivery procedure, and participants who had preferred a C-section delivery had a faster procedure, avoided the pain of contractions, and felt that it was safer for the child.

[I felt] good. It was what I wanted [a vaginal delivery]. (Participant 15)

It was right [the decision to have a C-section]. I think that if it were vaginal, my baby would have been in danger. (Participant 17)

I’m happy because I didn’t pass through the pain of vaginal delivery. (Participant 11)

Of the 10 participants that had an original plan for a vaginal delivery, 8 ended up having a C-section delivery. Five of them were programmed for an ERCD or an emergency cesarean delivery due to complications detected during antenatal care, and the other three were failed TOLAC due to complications during labor. The five participants in the

ERCD group were informed about the reason for the C-section and accepted the procedure given concerns about their babies' safety. However four participants reported that they did not receive further information about the pros and cons of a C-section versus vaginal delivery and SDM could not be achieved despite attending antenatal visits.

No, (I did not agree with the final mode of delivery). Well, at the antenatal visit they told me that if the contractions didn't come, they were going to have to do the cesarean. . . . They (health workers) gave me a paper to read the risks of the anesthesia and I had to sign. (Participant 1)

I didn't want the cesarean but they (the doctors) told me the baby's time was running out and they had to do the cesarean. . . . No, this time the doctors didn't tell me anything (about the risks and benefits of a C-Section). (Participant 14)

The other participant reported feeling good about her decision and was informed about the risks and benefits of C-Section by the health provider.

The doctor who was checking me in the office saw the ultrasound and as I had little liquid left she told me that it was best for the baby to have a C-section. I agreed [to have a C-section] for the sake of the baby. . . . Yes, with the doctor (who informed the participant about the risks and benefits of a C-Section), what I learned about the risks is that after delivery, there's pain and the benefit is that the baby is born well. (Participant 6)

Among the three participants who failed TOLAC, only one felt bad about the delivery mode because of her unfulfilled desire to have a vaginal delivery.

Well, (I felt) bad because I wanted a vaginal birth, but I had to do it [have the C-section] because of the life of my baby. (Participant 8)

The other two participants felt good about the delivery mode. One of them understood that a C-section delivery would be performed if her labor didn't started and the other one accepted a C-section because she could not tolerate the labor pains.

I was going to have a vaginal delivery, but, honestly, I couldn't take any more pain, so, they evaluated me and took me to surgery. I agreed because I couldn't take any more [pain]. . . . Since my first

baby girl was born by C-section, I knew how it was. I felt calm. (Participant 13)

Regarding participants that planned for a C-section, only one of them ended up having a vaginal delivery. The participant reported that she never agreed on having a change in the plan, but the operating rooms were not available and health workers gave her a brief explanation on why they were opting for a vaginal delivery. The delivery was traumatic and she reported that her baby had complications due the delivery mode.

Well, I was already evaluated by cardiology and anesthesiology for the cesarean one month earlier. It [the delivery] came early. . . . In the end, they [the doctors] came to evaluate me and said that I was already dilated and had a good pelvis so that I could have a normal delivery [vaginal]. I disagreed. (Participant 9)

## DISCUSSION

Shared decision making regarding mode of delivery following a previous C-section is an unexplored issue in Latin America. Our study found that for most participants, providers did not consistently explain both options (vaginal or C-section delivery), and the participants usually made the decision about their delivery mode themselves. However, the women's decisions were not usually based on comprehensive knowledge of the risks and benefits of vaginal versus C-section delivery in women with a previous C-section, but on their own previous experiences or those of their family or friends. Some participants also mentioned that physicians indicated a C-section because of macrosomia (the size and weight of the baby) or gestational diabetes; however, these are not absolute indications for a C-section. Finally, a few participants opted for TOLAC, but ended up in an ERCD because of physicians' recommendations due to complications such as risk of fetal distress, transverse lie presentation, and risk of not starting labor. It is important to note that not all are mandatory indications for a C-section delivery.<sup>16</sup> Patients reported they were not fully informed about the benefits and risks of both (vaginal and C-section) delivery modes.

In Latin America, information about women's preferences regarding type of delivery is scarce. A qualitative study in Argentina about perspectives on the mode of delivery among pregnant women without a previous C-section found that most of the



women preferred vaginal delivery due to diverse factors such as fear of experiencing pain during the postpartum period after a C-section. Importantly, in the Argentinian study, the experience of pain during vaginal delivery was viewed as positive.<sup>13</sup> A study in Brazil among women without a previous C-section found that women expressed that vaginal delivery is better than a C-section, independent of the recognition that pain could be the main disadvantage of a vaginal delivery.<sup>17</sup> In the case of women in our study, which is a different group since they all had previous C-sections, 10 participants opted for TOLAC since they did not have a good previous C-section experience given pain and long recovery time. Some, however, were fearful of pain during a vaginal delivery.

Studies related to decision making around the mode of delivery following a previous C-section have been carried out with women in the United States and Europe. They found that women do not always have a firm perspective about the delivery mode and that some did not agree with taking responsibility for making the decision.<sup>7,18</sup> For example, a study from Europe found that 12 participants decided a vaginal delivery, 2 decided a C-section, and 7 were undecided.<sup>19</sup> In our study, every patient knew her preference at the time of the first interview, prior to delivery. A study in the United States found that decision making was complex for many women, who talked about choices and expectations with fear and anxiety.<sup>20</sup> Most of our participants felt calm about their decision, probably because participants did not worry about the risks of vaginal delivery after a previous C-section or of a repeat C-section because they were unaware of the most important risks such as uterine rupture in vaginal delivery or hysterectomy in repeat C-section. Similar to our study, a study in Scotland found that women were often making the decision without comprehensive, specific information about health risks and benefits.<sup>21</sup> For these reasons, the research team in Scotland has been working on decision aids to help physicians and patients in the delivery mode decision-making process.<sup>22</sup>

A systematic review that evaluated interventions to improve decision making in pregnant women after a C-section only reported on three studies, all of which were implemented in high-income countries. The interventions assessed were designed to be used either independently by women or mediated through the involvement of support from health workers. The review did not find differences in planned mode of delivery. However, women who

received decision aids reported less uncertainty about their preferred mode of delivery and there was also a significant increase in their knowledge with and standard mean difference of 0.74 (95% confidence interval = 0.46-1.03) compared with women in the control group.<sup>23</sup> According to these findings, decision making can be effective in improving knowledge and other measures around mode of delivery.

On the topic of decision-making experiences when the mode of delivery changes, there are few publications, and these limited publications focus on women's satisfaction with emergency C-sections regardless of whether or not they had a previous C-section. Consistently, women who have emergency C-sections present higher rates of negative feelings about C-sections than women who have elective C-sections, especially in women who are not involved in the decision.<sup>8</sup> Studies in Brazil have revealed that women who had C-sections may accept that they would have preferred to have a vaginal delivery but that they feel happy to have had a cesarean.<sup>9,10</sup> These findings are consistent with ours whether the patient opted for TOLAC but ended up in ERCD or went into failed TOLAC, where most women reported that they accepted a mode of delivery that was different from their preference because of complications or to ensure the safety of their baby.

### **Importance to Public Health and Practice Implications**

Autonomy is one of the principles of bioethics, specifically, that patient' decisions have to be respected.<sup>24</sup> The ideal health decision-making process is a SDM model in which patients, independent of their educational level and socioeconomic status, have sufficient information and the opportunity to consider their own values and preferences.<sup>25</sup> Pregnant women with previous C-sections have the right to know the risks and benefits of both delivery modes in order to make a decision together with the physician or other health personnel based on evidence.

Previous studies in Peru have found C-section rates of 30% to 50% in seven public hospitals in Lima in 2001 to 2008;<sup>26</sup> 21% in public hospitals and 49% in private hospitals in Peru in 2002 to 2005;<sup>14</sup> and 24% in Peru in 2008.<sup>27</sup> These rates are all higher than the rate recommended by the World Health Organization, that up to 15% of births can be by C-section.<sup>28</sup> SDM may not necessarily promote

higher rates of vaginal delivery, but most of the participants in our study did mention preferences for vaginal birth. If we respect this preference and facilitate better-informed decisions, including promotion of C-sections only in cases where a C-section is warranted based on evidence, this strategy may help reduce C-section rates.

Another interesting issue in our study was that some participants were programmed for a C-section because of the risk of not starting labor. Women scheduled for a C-section need to have a series of pre-operative procedures such as laboratory tests and consultations with a cardiologist and anesthesiologist. In the cases of participants that ended up having a vaginal delivery, all of these procedures were unnecessary. Cost-effectiveness analyses should be performed to evaluate the best strategy for these patients.

### Strengths and Limitations

This study is the first report of SDM regarding delivery mode among women with a previous C-section in a Latin American population. We found participants with different perspectives and feelings, confirming the heterogeneity of our sample. One limitation is the small sample size and the focus on patients from one hospital, which does not necessarily represent women's experiences in other settings like rural areas or diverse backgrounds and experience. However, this is one of the first studies to explore the decision-making process in Peru focused on the patient experience. Another limitation is that we did not collect information about the physicians' perspectives and knowledge regarding trial of labor versus C-section following a prior C-section or about SDM. However, we know from a previous study that 50% of fourth-year medical students in Peru identified their attending physicians as paternalistic.<sup>29</sup> Another limitation is that we were unable to access participants' clinical records postdelivery to evaluate the legitimacy of the reason for the C-section in participants who reported preferring a vaginal delivery, but having a C-section. Finally, we were not able to directly observe or record the decision-making process during antenatal visits or labor to verify the information provided by the participant. However, the objective of the study does not focus on the quality of the information provided by physicians but on patients' perceptions about the decision-making process. This type

of information can be adequately collected through postvisit interviews.

### CONCLUSION

Many participants mentioned that they made the decision about their delivery approach. However, this decision was not made based on comprehensive knowledge about the risks and benefits of vaginal delivery versus a C-section. Also, most of the participants that preferred a vaginal mode of delivery ended up having a C-section, resulting in limited disagreements and negative feelings about the final mode of delivery. Therefore, it is important to develop SDM tools in Peru and other countries of Latin America to facilitate clinicians' sharing of the best available evidence and engagement in dialogue with women about that information, together with consideration of women's values and preferences during pregnancy, labor, and the postpartum period. This would help ensure a process where women make pregnancy-related decisions in an informed, culturally and individually relevant manner.

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### ETHICS APPROVAL

Ethics approval was obtained from Hospital Cayetano Heredia (No. 038-012).

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