

Women's Views and Preferences for Mode of Birth in Public Hospitals in Argentina: a Mixed-methods Study

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Abstract

Background: This research explores women's preferences for mode of birth (MOB) and their opinions on the advantages and disadvantages of MOB in public maternity hospitals with caesarean section (CS) rates higher than 30% in Argentina.

Methods: Five public hospitals participated in this sequential mixed methods research. Post-partum women took part in semi-structured interviews which gathered information on obstetric history, MOB preferences, companionship, opinions on each MOB and if they would have liked to be asked about their MOB. The interviews were subsequently coded for quantitative analysis. A multiple regression model was run to explore variables associated with preferred MOB.

Results: The interviews took place during eight weeks in 2019. The participating hospitals had limited availability to pain management interventions during birth. Participants were 621 women with a mean age of 26 \pm 6. Forty percent had had a previous caesarean section (CS). Women gave birth accompanied in more than 80% of vaginal births and in less than 35% of caesarean sections. Six out of ten women would have liked to be asked about the MOB of choice. In three hospitals, the preference for vaginal birth (VB) was more than 90% and in two, 67%. Preference for MOB was strongly associated with the hospital in which the birth took place. The reasons for preferring a VB included faster recovery, feeling *ready*, and considering it more *natural*, while the disadvantages reported included birth pain and not getting anaesthesia. The most frequent reason for preferring a CS was to avoid birth pain. Women in hospitals with lower preference for VB expressed *safety* as a CS advantage. The disadvantages of a CS included post-procedure pain, dependence on others to take care of her or the baby afterwards and prolonged time in the hospital compared to a VB.

Conclusions: Women giving birth in public hospitals in Argentina prefer VB. *Safety* emerged as a theme in hospitals in which women had less preference for VB. Women's accounts indicate the need to improve access to holistic pain management during VB as well as to participate women in their desirable MOB.

Trial registration: IS002316

Abstract in additional language.

Spanish

Introducción: Las tasas de cesárea continúan aumentando en Latinoamérica. El diseño de intervenciones no clínicas para reducir cesáreas innecesarias requiere incorporar las preferencias de las mujeres sobre modalidad de parto preferida (MDP).

Métodos: El estudio se realizó en cinco hospitales públicos en Argentina a través de un diseño mixto. Las mujeres fueron entrevistadas después del parto durante 8 semanas durante el año 2019. Les preguntamos su MDP preferida, las ventajas y desventajas de cada modalidad y el acompañamiento

durante el parto. Las respuestas se codificaron y se analizaron cuantitativamente. Analizamos si las preferencias variaban según variables de las mujeres o de los hospitales.

Resultados

Los cinco hospitales participantes reportaron limitado acceso a anestesia epidural. Participaron 621 mujeres, edad media 26 ± 6 , 40% con cesárea previa. El 80% tuvo acompañamiento durante el parto vaginal (PV) y menos del 30% durante la cesárea. Seis en 10 mujeres hubieran preferido que les preguntaran sobre sus preferencias de parto. En tres hospitales el 90% de las mujeres prefiere PV y en dos hospitales el 67% prefiere un PV. La preferencia por la MD se asoció solamente al hospital en donde ocurrió el parto. Las razones de la preferencia por PV fueron recuperación más rápida y sentirse más preparadas. La razón más frecuente para preferir una cesárea fue la de evitar el dolor de parto y las desventajas se centraron en el dolor postoperatorio, la falta de independencia durante el postparto y el tiempo prolongado en el hospital.

Conclusiones Las mujeres en hospitales públicos en Argentina prefieren el PV sobre la cesárea, pero con diferencias entre hospitales, indicando la necesidad de adaptar intervenciones. Debemos trabajar para mejorar el manejo del dolor de parto, garantizar el acompañamiento en cesáreas e incorporar las preferencias de las mujeres en la decisión del MP.

Plain English Summary

We explore women's preferences for mode of birth (vaginal birth or caesarean section) and their opinions about the advantages and disadvantages of each mode of birth in five public maternity hospitals in Argentina. We asked women about their obstetric history, their preferences regarding mode of birth, if someone accompanied them during birth, their opinions each mode of birth and if they would have liked to be asked about their mode of birth. We interviewed 621 women in 2019. 80% of women who had a vaginal birth had companionship but less than 35% of women who had a caesarean section were accompanied. In three hospitals, the preference for vaginal birth was more than 90% and in two, 67%. Women's preference regarding mode of birth was associated with the birth hospital. Women's reasons for preferring a vaginal birth were feeling *ready* and considering it more *natural*. The disadvantages included birth pain and not getting anaesthesia. The most frequent reason for preferring a caesarean section was to avoid pain. Women who gave birth in hospitals with lower preference for vaginal birth said that *safety* was an advantage of the caesarean section. The disadvantages included pain after the birth, the dependence on others to take care of her or the baby after and having to stay more time in the hospital. Our findings indicate negative birth experiences with caesarean section and the need to improve access pain management during vaginal birth as well as to participate women in their mode of birth.

Background

During the past century, childbirth changed from being a natural and domestic experience to a medical and professional act. Progress in medical interventions and technology in childbirth led to improvements in the life and health of women and children. The introduction of safe caesarean section (CS) was an essential development of that process and, today, CS is at the center of emergency obstetric care. However, its overuse in low-risk pregnancies is problematic, since the procedure increases the risk of short and long-term comorbidities in subsequent pregnancies, negatively altering its risk-benefit balance (1–3). The Latin American region has rapidly adopted the use of CS, reporting the largest increase in CS rates during 1990–2014 (4). Studies based on Latin-American data suggest that the rise of CS rates is driven by the private healthcare sector and the increase of women of higher socio-economic status requiring a CS (5–8). However, in Argentina, in the period 2010–2017, the proportion of surgical births increased in public hospitals by 22% (9, 10), exceeding the global CS rates growth (4).

A decade ago, a cross sectional study in Buenos Aires City indicated that, in overall, 92% of women preferred vaginal birth (VB) over CS with no differences between private and public facilities, a rate similar to Nordic countries in Europe and other developed countries (11, 12, 14). It is uncertain if women preferences have since then evolved and if we can attribute the increasing trend in public hospitals to a shift in mode of birth (MOB) preferences. There are also uncertainties about how hospital variables may influence decision-making.

We conducted a mix methods study analysing hospital and women variables to improve our understanding of women's MOB preferences and the reasons behind them in public hospitals in Argentina with CS rates over 30% in 2017. We also explored if women understood the short and long-term disadvantages of the use of CS and when it is indicated. This paper is a component of a larger formative research study aimed at improving the understanding of factors driving the increase of CS in public facilities in Argentina as well as at tailoring interventions to reduce the use of unnecessary CS. The reporting of the methods and results follows the standards of reporting of qualitative studies. (13)

Methods

This research, which is part of a larger formative research, used a mixed-method approach. For the formative research, nineteen hospitals purposely selected participated in a quantitative study that collected data on institutional characteristics and health providers' views on CS determinants. In addition, five hospitals were selected from diverse regions in the country for a more in-depth assessment to analyze institutional variables, physicians' opinions on CS determinants, and women's preferences for MOB using both qualitative and quantitative data collection techniques.(14)

The data collected from the institutional survey included the number of live births and the CS rate (2017), the number of human resources per 1,000 live births and the availability of pain management strategies, antenatal education and infrastructure to manage obstetric emergencies.

Women were recruited from the five selected hospitals during eight consecutive weeks between March and June 2019. The sampling strategy was based on the delivery logbook of each hospital and included

a random selection of women giving birth in the two-month period or until reaching 130 women at each institution, in order to recruit no less than 450 women across the five hospitals.

The inclusion criteria were women over age 15 who delivered a live and healthy newborn. In line with current Argentinean laws, adolescents aged 15 to 17 were included if they agreed to participate and after obtaining informed consent from their parents or legal guardian. Women were excluded if a) they had a new-born admitted to the neonatal Intensive Care Unit after delivery; b) had experienced a perinatal death; and c) they were aged 14 years or less.

Semi-structured interviews

The interviews gathered information on women's obstetric history, preferences regarding MOB, their views on the advantages and disadvantages of VB and CS, and their understanding of when a CS is indicated. Women were asked if they would have wanted to be asked about their MOB. The trained interviewers encouraged women to elaborate and give more than one answer if necessary. Two researchers (MR and NR) worked independently coding the open-ended questions.

Coding was compared and disagreements were solved by discussion until consensus was reached. Data was imported into a database in a standard quantitative format respecting multiple answers when applied.

Analysis

Data was described as mean \pm standard deviation (Mean \pm SD) or median (range) for continuous variables and percentages for categorical variables. Chi-square test was used for categorical variables as group comparison.

Preference for mode of delivery was analysed using univariate and multivariate analyses adjusting for maternal age, delivery mode on the index pregnancy, parity, history of miscarriage, and delivery hospital. Unadjusted Odds Ratio (OR) and adjusted OR and 95% Confidence Interval (CI) were used. The delivery hospital was included as a dummy variable with Hospital C as control (OR = 1.00) and VB as the control group (OR = 1) for the mode of delivery (15). All statistical tests of hypotheses were two sided and criterion for statistical significance was set to $\alpha = 0.05$. Statistical analyses were carried out with Stata version 15.

Ethical approval and consent

The research study has ethical approval from the Independent Ethical Committee of the Centro Rosarino de Estudios Perinatales (Argentina), the Research Project Review Panel of the UNDP/UNFPA/UNICEF/WHO/World Bank Special Programme of Research, Development and Research Training in Human Reproduction, at the Department of Sexual and Reproductive Health and Research at the World Health Organization, the Research Ethics Review Committee of the World Health Organization,

and the provincial and ethical committees of each of the participating institutions. Women signed an informed consent and anonymity was ensured by not including any personal data that could be linked to them.

Results

The characteristics of the hospitals from which women were recruited are described in Table 1. The participating hospitals median percentage of birth by CS was 39.5% (29.9% – 45.5%). The number of live births ranged from 1,100 to 7,900 per year. The hospitals are financed by government taxes and are free of charge at point of care. Even though they share a similar financing structure, they differ greatly in workforce numbers and services. The total number of midwives, obstetricians and residents working in maternal care varied from 8.8 to 40.7 per 1,000 live births, while the number of midwives ranged from 0 to 8 per 1,000 live births. Only one hospital (Hospital C) had comprehensive pain management interventions available to women 24 hours —, which included access to hot water showers and epidural— and offered an extended schedule of antenatal education. The other four hospitals had limited availability to epidural or non-medical pain management interventions and provided a restrictive antenatal education schedule (e.g. one morning a week). The five hospitals reported to provide safe emergency caesarean surgeries 24/7, as they had access to emergency anaesthetists, blood bank, surgeon, neonatal intensive care unit, operating rooms, and adult Intensive Care Unit. The embolization of the uterine artery was available in only one hospital (Hospital C).

Table 1
Hospitals' characteristics, CS rates, number of live births and number of healthcare professionals /1,000 births

	Hospital A	Hospital B	Hospital C	Hospital D	Hospital E
Number of live births (2017)	1220	2798	7930	2200	3467
C-section rates (2017)	41.3	37.6	29.2	42.3	45.5
Number of midwives/1,000 live births	13.1	0	1.6	0	7.2
Number of OBY/GY /1,000 live births	16.3	8.5	3.6	6.8	6.6
Number of trainees in OBY/GY /1,000 live births	11.4	4.6	3.5	0	0
Access to Emergency C-section	yes	yes	yes	yes	yes
Access to Epidural 24 hours. 7 days a week	no	no	yes	no	no
Access to hot shower facilities during birth 24 hours. 7 days a week	no	no	yes	no	no
Access to massage, relaxation for pain management 24 hours, 7 days a week	no	no	yes	no	no
Antenatal education offered AM/PM	no	no	yes	no	no
Companionship during VB 24 hours. 7 days a week	yes	no	yes	no	no
Companionship during CS 24 hours, 7 days a week	no	no	no	no	no

The 621 participating women gave written informed consent. Their mean age was 26 + SD 6. 12.4% were adolescents and six out of ten had a VB in the index pregnancy. Women's median number of previous pregnancies was 1.2 (range 0 to 7) and 40% of them had had a prior CS. Most women who had a VB had someone of their choice during birth (N = 314, 88.5%) while only a third of women who had a CS had companionship during birth (N = 213, 34. %). There were differences across hospitals. In Hospitals B, C, and E most women that experienced a CS birth did not have companionship during birth (Table 2).

Table 2
Women demographics, obstetric history, and mode of birth preferences

	Total	Hospital A	Hospital B	Hospital C	Hospital D	Hospital E
Number of women interviewed, N (%)	621 (100)	130 (20.9)	127 (20.4)	129 (20.7)	101 (16.2)	134 (21.5)
Age, mean (SD)	26 ± 6	27.4 ± 5	25.4, ± 5	26 ± 6	25 ± 5	26 ± 6
Parity, median (range)	1 (0–6)	2 (0–6)	1 (0–5)	1 (0–6)	1(0–6)	1 (0–5)
Women with previous CS, N (%)	171 (40.6)	41 (40.5)	30 (36.1)	31 (35.2)	20 (32.7)	49 (55.6) ¹
Adolescents (16–19 years of age) N (%)	77 (12.4)	9 (6.9)	17 (13.3)	17 (13.1)	12 (11.8)	22 (16.8)
VB in the index pregnancy, N (%)	355 (57.1)	69 (53)	74 (58,6)	68 (52)	64 (63)	80 (59.6)
Preference for VB, N (%)	467 (75.2)	119 (91)	87 (69) ²	108 (92)	82 (93)	71 (64) ²
Was accompanied during birth by someone of her choice (total), N (%)	404 (65.1)	94 (72.3)	73 (57)	65 (50.4)	95 (94.1)	77 (57%)
Yes BV ³	314 (88.5)	50 (72.5)	70 (94.6)	60 (88)	63 (98.4)	71 (88)
Yes CS ³	213 (34.3)	44 (72)	3 (5.7)	5 (8)	32 (86.5)	6 (11)
No answer	4 (0.6)		3 (2.4)			1(0.7)

1 Compared against all the other hospitals statistically significant (p0.000 chi square).

2 Compared against all other hospitals statistically significant (p0.000 chi square).

3 Percentage of women that reported being accompanied during birth % over the total number of births on that MOB in that hospital or the total

Most women (N = 467, 75%) preferred VB to a CS; however, the preferences varied across hospitals. In hospitals A, C and D, more than 90% preferred VB over CS, whereas in hospitals B and E this preference was lower, 64% and 69% respectively (chi square p 0.001). A logistic regression model was conducted to explore the association between MOB preferences and maternal obstetric history, age, and hospital where birth occurred. Preference for VB was the reference group. The following variables were associated to MOB preferences: the number of previous miscarriages (OR = 0.58, 95% CI 0.34–0.99), MOB on the index

pregnancy (OR = 2.06, 95% CI 0.93–4.55), and the hospital in which delivery took place if CS was the preferred MOB (Hospital B OR 0.14, 95% CI 0.05–0.40; Hospital E OR 0.09, 95% CI 0.03–0.25) (Table 3).

Table 3

Mode of birth preferences. Univariate and multivariate analysis¹. Preference for VB is the reference group for the dependent variable.

	Univariate analysis MOB preference Vaginal Birth	Multivariate analysis MOB preference Vaginal Birth
Age ²	1.0 (0.97–1.04)	1.02 (0.97–1.06)
Previous miscarriages	0.88 (0.59–1.60)	0.58 (0.34–0.99)
Mode of Birth in the index pregnancy	3.96 (2.50–6.28)	2.06 (0.9–4.55)
Previous pregnancies	1.08 (0.92–1.27)	Dropped (ns)
Hospital in which birth took place		
Hospital C ³	0.90 (0.35–2.25)	
Hospital B	0.2 (.10 – 0.40)	0.14 (0.05–0.4)
Hospital A	1.10 (0.44–2.77)	0.70 (0.21–2.37)
Hospital D	1.08 (0.40–2.90)	0.85 (0.81–3.17)
Hospital E	0.16 (0.08–0.24)	0.09 (0.03–0.25)

1 Vaginal birth preference as the control group

2 Continuous variables

3 Hospital C referent

Women that preferred VB over CS (N = 467, 75%) explained their preferences based on their birth experience — *faster recovery after birth* (N = 263, 56.3%), *more natural/feeling ready* (N = 137, 29.3%) — or in opposition to the birth experience of a CS — *more pain post-partum/you can't move/you have to stay more time in the hospital* (N = 152, 32%) (Table 4). The most frequent reasons for a CS preference (N = 104, 16.7%) fell under two domains: birth experience and safety. The former included *not having to go through contractions/not feeling pain during birth* (N = 32, 30.7%) and *faster procedure* (N = 20, 18%). The latter included *feeling the procedure is safer* (N = 42, 40.3%) and *the doctor controls the procedure* (N = 15, 14%). Interesting, only women who gave birth at the two hospitals with the lowest preference for VB (Hospital B and Hospital E) explained their preferences using *safety* as the main reason.

Table 4
Women preferences, MOB in the index pregnancy, and reason more frequently cited by preferences

VB preference	
N = 467 (75%)¹	
VB in index pregnancy	293 (62.7%)
CS in index pregnancy	174 (37.3%)
Faster recovery after birth	263 (56.,3%)
More natural	137 (29.3%)
CS more painful /CS limited autonomy after birth /more time in hospital	152 (32%)
CS preference	
N = 104 (16.7%)	
Not feeling birth pain	32 (30.7%)
Faster procedure	20 (18%)
Safety	42 (40.3%)
The doctor controls the procedure	15 (14%)

1 Women gave more than one reason for preference

Women also gave their general opinions on the advantages and disadvantages of VB and CS regardless of the preferred MOB. The most cited advantages for VB were *fast recovery* (N = 438, 70%), *more natural than a CS* (N = 311, 49%), feeling *less pain after birth* (N = 305, 48%), being *able to move right after* (N = 274, 43%), *partner can be present* (N = 239, 38%), and requires *less time at the hospital* (N = 272, 44%). The most cited advantages for CS included *not feeling pain* (N = 207, 33%), *faster process* (N = 194, 30%), the *prediction of the birth date* (N = 189, 29%), *not feeling the contractions* (N = 181, 29%), *safer* (N = 119, 19%), *can save the baby in an emergency* (N = 115, 18%), and *better for the body/no perineal tears* (N = 29, 4%).

The most frequent disadvantages of a VB were related to the birth experience (N = 356, 57%), mostly *pain* (N = 331, 53%) but also *perineal tears* and *discomfort with the physical examination*. It is worth noting that a significant proportion of women answered that VB did not have any disadvantage (N = 183, 29.4%) while most women in the sample (N = 503, 81%) mentioned the post-partum experience as the main disadvantage of CS. More specifically, these disadvantages were related to either pain after the procedure, the lack of independence to look after the newborn, or the risk for the mother or the baby.

Six out of ten women responded they would have liked to be asked for their preferable MOB (N = 363, 58.4%), and only 18 answered 'I don't know'. The most frequent reasons for wanted to be asked were

related to women's entitlement: *the right of women to choose and have her voice considered and valued* (N = 242, 38%).

Lastly, women were asked about the circumstances in which a CS is needed. Overall, women cited medical conditions like *life risk for the mother or mother with severe disease* (N = 345, 55%), *baby on breach position* (N = 267, 42%), *nuchal cord* (N = 239, 38%), *birth date overdue* (N = 201, 32%), *prolonged labour/women exhaustion* (N = 193, 31%), or *having had a previous CS* (N = 142, 22%).

Table 5
Women's views of advantages and disadvantages of CS irrespective of preference

VB advantages	
Fast recovery	438 (70%)
More natural	311 (49%)
Less pain after birth	305 (48%)
Regaining independence after birth	274 (43%)
Partner can be present	239 (38%)
Less time at the hospital	272 (44%)
CS advantages	
Not feeling birth pain	207 (33%)
Faster process	194 (34%)
Birth date predictable	189 (29%)
Not feeling contractions	181 (29%)
Safer ¹	119 (19%)
Can save the baby in an emergency	115 (18%)
No perineal tears	29 (4%)

1 Women from hospitals with higher preference for CS

Discussion

This study set out to explore women's birth preferences in public hospitals in different regions in Argentina that have had a steady increase in CS rates during the period 2010–2017. In the five hospitals included, women preferred VB over CS. Women explained VB preferences by its fast recovery and the feeling of being more prepared to it than to a CS, while preferences for CS were based on safety and VB pain.

The hospital in which the birth took place was a strong variable associated to MOB preference. In three hospitals, nine out of ten women preferred VB over a CS —indicating a preference similar to those observed in Europe and similar to the only study available from birth preferences in Argentina (12, 16, 17)—, while in two hospitals that preference was 20% lower even after adjusting for previous CS, type of pregnancy on the index pregnancy, and history of miscarriage. Most of the literature on MOB prevalence has tried to understand the differences in MOB preferences across countries or financial systems (12, 17). Our study shows that women’s MOB preferences seem to differ even in hospitals within the same financial system.

The difference in MOB preferences across hospitals is challenging to interpret. The two hospitals in which women had higher preference for CS had different human resource structure (one hospital had midwives in their team and the other did not) and are in different regions of the country. They share similar features than hospitals with higher VB preferences, such as CS rates higher than 37%, limited availability for pain management and limited offer of antenatal education. Women with higher preference for CS did not differ on their age or number of previous pregnancies to those who preferred vaginal birth. Moreover, in the two hospitals with a higher preference for CS, women that experienced CS did so without a companionship of their choice most of the time.

We did not investigate the reasons for choosing the birth hospital. Women with a higher preference for CS may choose a hospital that may facilitate their request for CS. To the best of our knowledge, this is the first study showing that even in hospitals with similar financing structure and similar limited provision of pain management during birth women have different MOB preferences across hospitals. The study emphasizes the importance of contextual factors, and it also indicates that providers and policy makers have to adapt interventions to address these variables.

In this sample, women accounted for their MOB preference based on different elements for VB and CS. For vaginal deliveries, they feel more prepared and ready; they value the possibility of a fast recovery and being able to breastfeed. The negatives attributes of VB focused on pain during birth and enduring the contractions. They also cited the difficulties of looking after themselves after a CS (18).

The positives accounts for CS preference were the possibility of anaesthesia. Interestingly, only women who gave birth in the two hospitals with lower VB preference mentioned *safety* as an advantage of a CS. The negative attributes of the birth experience with CS focused on the short-term difficulties with mobility and recovery after birth, the extra-time in hospital, the pain after birth and the difficulties of taking care of new-born.

Women’s narratives on pain experienced during and after birth were consistent and repetitive across all participants regardless of their age, MOB, and previous pregnancies. It is also the common narrative of women across countries and regions irrespective of their MOB preference (12, 19–24). Four of the five participating hospitals had no access to epidural by request, a hot shower, massages, relaxation, or hypnosis, which may result in sub-optimal pain management during labour. This is consistent with ‘pain’ as the recurrent reason reported by women to prefer a CS across the world (19, 22) A qualitative study by

Wang (25) also discusses how a limited access to pain relief is a potential determinant of the use of surgical birth. Given these consistent findings, policy makers, managers and health-care teams need to be aware and address pain management during and after birth as an essential component of maternity services, which also means that they need to be adequately resourced.

When asked about the consequences of both CS and VB, most women focused exclusively on short-term effects. This suggests a lack of awareness of long-term risks associated with birth, which in turn shows the need for education on this respect. Our finding on women's emphasis on immediate consequences is consistent with previous studies in other countries that show that longer-term effects are under-reported (24, 26, 27).

In line with studies in other settings, a significant finding of our study is that six out of ten women wanted to be asked on the birth preference (11, 28, 29), which reinforces the need to tailor the design and content of interventions targeting women and confirms women's desire for communication and an informed dialogue with healthcare providers (30).

Our study also showed the limited human resources of most of the public hospitals in the country. Only one hospital (Hospital C) had the number of staff per live births similar to those in high-income countries. It is difficult to assess if the significant demand pressure of the hospitals is a contributing factor for higher CS rates.

There are some limitations to the study. This sample is representative of women who had an uneventful pregnancy and delivered a healthy newborn. It is possible that women with traumatic birth experiences or experiences in Intensive Care Unite may have different accounts in terms of MOB preferences, birth experience and perception of safety.

A starting point for hospitals intending to reduce unnecessary CS should include gathering information on how women shape their preferences and what they value when facing decisions on MOB. There is an urgent call to put in place a model of care that includes availability of pain management strategies during labour and after CS, a space for women to decide the birth experience they want and the participation of women in the decision-making process to better honour their preferences (31, 32).

Conclusions

The findings provide support for tailoring non-clinical interventions targeting women and contribute to a deeper understanding of the dimensions related to women's preferences and needs. In planning and implementing a strategy for optimizing the use of CS in Argentina, our results underline the crucial importance of addressing the issues of fear of pain and pain management itself, the availability of relevant information on long-term consequences of CS and the need to explore the safety concerns in relation to VB.

List Of Abbreviations

CS: caesarean section; MOB: mode of birth; UNDP: United Nations Development Programme; UNFPA: United Nations Fund for Population Activities; UNICEF: United Nations International Children's Emergency Fund; VB: vaginal birth; WHO: World Health Organization.

Declarations

Ethics approval and consent to participate

The research study has ethical approval from the Independent Ethical Committee of the Centro Rosarino de Estudios Perinatales (Argentina), the Research Project Review Panel (RP2) of the UNDP/UNFPA/UNICEF/WHO/World Bank Special Programme of Research, Development and Research Training in Human Reproduction, at the Department of Sexual and Reproductive Health and Research at the World Health Organization, the Research Ethics Review Committee (ERC) of the World Health Organization, and the provincial and local ethical committees of each of the participating institutions. Women signed an informed consent and anonymity was ensured by not having any personal data that could be linked to them. In line with current Argentinean laws, adolescents aged 15 to 17 were included if they agreed to participate and after obtaining informed consent from their parents or legal guardian.

Consent for publication

Not applicable

Availability of data and materials

The data is stored on CEDES' server, encrypted. CEDES is the guardian of the dataset. Data is anonymized. Our data collection forms did not include any variable that could reveal the identity of the participants. The datasets generated and/or analysed during the current study are not publicly available due requests from the participating hospitals but are available from the corresponding author on reasonable demand.

Competing interests

The authors declare that they have no competing interests.

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Author contributions

SR and APB delineated the original research and research program outline. MR, SR, CP, YS have written the study protocol. APB contributed to improvements on the original protocol. MR, YS, CG coordinated the fieldwork. YS, CG, NR conducted the fieldwork. MR has coordinated the coding of the semi-structured interviews. CP conducted the data analysis and oversaw the completion of the database. CP and MR wrote the first version of the manuscript. All authors have contributed to, read and approved the final manuscript.

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