



Midwifery practice and maternity services: A multisite descriptive study in Latin America and the Caribbean

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ABSTRACT

Objective: over the past three decades there has been a social movement in Latin American countries (LAC) to support humanised, physiologic birth. Rates of caesarean section overall in Latin America are approximately 35%, increasing up to 85% in some cases. There are many factors related to poor outcomes with regard to maternal and newborn/infant health in LAC countries. Maternal and perinatal outcome data within and between countries is scarce and inaccurate. The aims of this study were to: i) describe selected obstetric and neonatal outcomes of women who received midwifery care, ii) identify the level of maternal well-being after experiencing midwifery care in 6 Latin America countries.

Design: this was a cross sectional and descriptive study, conducted in selected maternity units in Argentina, Brazil, Chile, the Dominican Republic, Peru, and Uruguay. Quantitative methods were used to measure midwifery processes of care and maternal perceptions of well-being in labour and childbirth through a validated survey of maternal well-being and an adapted version of the American College of Nurse-Midwives (ACNM) standardized antepartum and intrapartum data set. Setting: Maternity units from 6 Latin American countries.

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Participants: the final sample was a convenience sample, and the total participants for all sites in the six countries was 3009 low risk women.

Findings: for the countries reporting, overall, 82% of these low risk women had spontaneous vaginal deliveries. The rate of caesarean section was 16%; the Dominican Republic had the highest rate of Caesarean sections (30%) and Peru had the lowest rate (4%). The use of oxytocin in labour was widely variable, although overall there was a high proportion of women whose labour was augmented or induced. Ambulation was common, with the lowest proportion (48%) of women ambulating in labour in Chile, Uruguay (50%), Peru (65%), Brazil (85%). The presence of continuous support was highest in Uruguay (93%), Chile (75%) and Argentina (55%), and Peru had the lowest (22%). Episiotomies are still prevalent in all countries, the lowest rate was reported in the Dominican Republic (22%), and the highest rates were 52 and 53% (Chile and Peru, respectively). The Optimal Maternal well-being score had a prevalence of 43.5%, adequate score was 30.8%; 25% of the total sample of women rated their well-being during labour and childbirth as poor.

Key conclusions: despite evidence-based guidelines and recommendations, birth is not managed accordingly in most cases. Women feel that care is adequate, although some women report mistreatment. *Implications for Practice:* More research is needed to understand why such high levels of intervention exist and to test the implementation of evidence-based practices in local settings.

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Introduction

Over the past three decades there has been a social movement in Latin American countries to support humanised, physiologic birth (Umenai et al., 2001). As rates of caesarean section overall in Latin America are approximately 35%, increasing up to 85% in some cases (Taljaard et al., 2009) current research confirms evidence of complications of Caesarean sections for both mothers and their children. Well-established, short-term maternal risks are increased in Caesarean sections, including postpartum urinary tract infections, surgical wound infections (Hung et al., 2015), and breast feeding problems (Bodner et al., 2011). Emergent longer term maternal effects include subsequent stillbirth, miscarriage and ectopic pregnancy (Silver, 2010; Solheim et al., 2011; O'Neill et al., 2014).

Infant long term effects include higher rates of common infectious diseases, as well as higher rates of respiratory tract infections (pneumonia, bronchitis, influenza, cough and breathing problems) (Merenstein et al., 2011). A recent study has indicated a higher risk of long term childhood effects in both acute and elective Caesarean sections of childhood mucosal infection, inflammation and juvenile idiopathic arthritis (Kristensen and Henriksen, 2015). There are also reports of a link between Caesarean section and induced labour and Autism Spectrum Disorders (Gialloreti et al., 2014).

Background to Latin America and the context for this study

Latin America and the Caribbean (LAC) is the global region with the greatest inequalities in income distribution, although there is great heterogeneity among countries (ECLAC, 2004; Barcena and Prado, 2016). According to the Committee on Population and Development at the United Nations Economic Commission for Latin America and the Caribbean (ECLAC), objectives to reduce disparities in maternal and infant mortality rates within countries have yet to be met (ECLAC, 2004).

There are many factors related to poor outcomes with regard to maternal and newborn/infant health in LAC countries (Belizan et al., 2005), also maternal and perinatal outcome data within and between countries is scarce and inaccurate, therefore many goals have been established to be achieved.

Among these goals is that all LAC countries recognise the value of enabling all women in the region to attain their optimal reproductive health. This includes the provision of a woman and

family-centred (i.e. humanised) model of care, which avoids an exclusively biological view of health and illness. This approach requires respect and familiarity for the childbearing woman and her family's psychological, social, and cultural needs. Therefore, the focus and evaluation of care must be centred on emotional, social, and cultural aspects, rather than solely on the physical dimension. Traditionally, outcomes of care have focused upon morbidity and mortality. Qualitative aspects, such as the satisfaction of the woman and her partner with the reproductive process, must also be evaluated (Belizan et al., 2005).

In 2005, the Pan-American Health Office (PAHO) published a review aimed to explore the extent of midwifery services and practices and describing five different profiles of midwifery services in Latin America and the Caribbean countries (Odberg and Stone, 2005). This report highlighted the importance of professional midwifery's role in improving maternal and neonatal outcomes in the region. The report went on to note that professional midwifery is underdeveloped in all regions of the Americas except for the non-Latin Caribbean. Moreover, the authors concluded that midwifery practice in the Americas in general is highly medicalized (physician dominated) with elevated rates of caesarean sections.

Midwifery faculty at the University of Chile, (Binfa et al., 2013) have conducted two assessments of clinical midwifery processes of care, maternal and newborn outcomes, and women's perceptions of care during labour and childbirth in hospitals in Chile. A pilot was undertaken in 2 metropolitan regional hospitals in Santiago, and the results were published in 2013 (Binfa et al., 2013). A subsequent study, using the same design and methods was replicated in 7 more of the Chilean regions (Binfa et al., 2016). At the same time, contacted by email and conference networking, we invited midwives and nurses in other countries in LAC to replicate the study, adapting it to their local context. Despite the absence of research funding, midwifery or nursing researchers in Argentina, Brazil, the Dominican Republic, Peru, and Uruguay agreed to participate.

Researchers in each country agreed they would be responsible for publishing reports from the studies in their own countries, but that the aggregate data would be reported from the Department of Women's and Newborn Health Promotion and School of Midwifery at the Faculty of Medicine, University of Chile. This is the report of the aggregate results from 6 countries, Argentina, Brazil, Chile, the Dominican Republic, Peru, and Uruguay.

Methods

Ethical approval

Ethical approval to conduct each study was obtained from the Ethical Committee at each maternity setting participating in the study. Participants were assured that data were confidential and all participants signed an informed consent before enrolment in the study (WMA, 2004). In addition, Institutional Review Board approval was obtained from the Universities where the country's Principal Investigator was located.

Research approach

Although the previously reported Chilean studies used a mixed-methods design, only the quantitative element is reported in this study, because not all countries were able to conduct the qualitative element. Two of the study aims were replicated from the Chilean studies by all countries: i) describe selected obstetric and neonatal outcomes of women who received midwifery care, ii) identify the level of maternal well-being after experiencing midwifery care in 6 Latin American countries.

Inclusion criteria were primiparous and multiparous women who were admitted in the labour ward with a spontaneous labour and 2–3 cm of cervical dilatation and who spent a minimum of four hours in the labour ward. These criteria ensured that participating women stay in the unit enough time to receive midwifery care.

For multiparous women, inclusion criteria included a birth interval of less than 3 years to assure relatively recent memory of their last birth experience, and thus compare her perception between her last experience of childbirth and the recent one. Another criterion was the capacity to give and sign informed consent. Women with a clinical history of mental illness or drug abuse were excluded. The final sample was a convenience sample, and the total participants for all sites in the 6 countries was 3009 low risk women.

Quantitative data collection

Prior to data collection, the Chilean research team reviewed the project, the protocols and the data collection instruments with all investigators in the participating countries. All data were collected postpartum either by the principal investigators in each country, or by research assistants whom they trained and supervised. For objective (i), each site used the Chilean's Spanish language adaptation of the Intrapartum Data Set, developed by the American College of Nurse-Midwives (ACNM), validated in 1991 (Greener, 1991) and published in 1999 (copyright) for educational or research purposes (ACNM, 2010).

The other quantitative instrument was the Maternal Well-Being Scale, a 42 item structured interview conducted face-to-face, using a Likert scale. This instrument was created and validated in Chile (Uribe et al., 2008). This measure was adapted to the context of each participating maternity unit, so not all countries used all 42 items, depending on the relevance of the item for their site. Items included statements asking women to rate the degree to which they felt respected and well treated, whether their care was timely, whether they had freedom of movement, or ability to have fluids or food in labour, whether they had continuous support, skin-to-skin contact with their newborn, among other statements about care.

Quantitative analysis

For the obstetric and neonatal variables, continuous variables

were described as means, and categorical variables as proportions. The scoring instructions for the Well-Being Assessment Scale were provided by the Chilean research team that validated the instrument (Uribe et al., 2008). Maternal well-being was calculated and categorized into three outcomes, optimal (score > 172), adequate (score 152–172), and poor (score < 152). A database was constructed using an excel file, and data were analyzed and presented in terms of descriptive statistics.

All socio-demographic and labour and childbirth data were obtained from the medical records, and if necessary, interviewing participants. For objective (ii), the Maternal Well-Being Assessment Scale, data were collected through a structured interview conducted with participants who met the inclusion criteria.

Results

The total sample was $N=3009$. The place of birth for all countries was the hospital. The characteristics of the hospital with respect to location, public/private, skilled birth attendants at the hospital, and number of births annually are reported in Table 1.

The main sociodemographic characteristics of each of the participating countries are described in detail in Table 2. The age of the participants was between 21 and 27 years. The highest mean age was among the Peruvian women (26.7 years), and the youngest mean age was reported in the Dominican Republic (20.9). Brazil had the highest proportion of women who were married (15.1%), the Dominican Republic had the lowest proportion (4.6%). Most women in all countries were co-habiting (58.8–80.2%).

Argentina was the country with the highest proportion of women with only primary education (46.3%). In all countries, most women had completed secondary education (54.7–69.3%).

For the countries reporting, overall, 82% of women had spontaneous vaginal deliveries. The rate of caesarean section was 16%; the remaining proportion of women had assisted deliveries with forceps. The Dominican Republic had the highest rate of Caesarean sections (30%); Peru had the lowest rate (4%). More than half of the women across all the reporting countries were primiparous, with the exception of Uruguay, where 26% were primiparous. This is important to keep in mind when comparing modes of childbirth across countries.

When examining oral hydration or eating in labour, Chile had the highest proportion of women who had neither (69%). In the Dominican Republic, on the other hand, only 13% had no food or liquid in labour, and 36% had a light meal. In terms of parenteral fluids, about 90% of women had IV fluids during labour in Chile, Argentina, and the Dominican Republic, followed by Peru (59%), Uruguay (18%), and Brazil (16%).

The use of oxytocin in labour was widely variable, although overall there was a high proportion of women whose labour was augmented or induced. In Spanish the term is conducted, or *conducido*. 'Conduction' of labour in this study was defined as the use of oxytocin, and/or artificial rupture of membranes and/or epidural usage. Women entered the study in spontaneous labour, so none of them had labour 'induced'. Rather, any women whose labour was augmented by an external means such as oxytocin use, amniotomy, or epidural use was considered 'conducido'. The Dominican Republic had the lowest rate of use (33%). Women's labour in Uruguay and Peru was augmented in 59% and 62% of women's labour, respectively, with the highest percentage of labours augmented in Argentina (71%), Brazil (82%), and Chile (86%).

Given the high percentage of conduction use in labour, it is of interest to note in which countries women relied on pharmacologic (Epidural usage) or non-pharmacologic methods of pain relief. In Uruguay and Peru, over 90% of women used non-pharmacologic

Table 1
Characteristics of hospital delivery sites by country.

Country	Location	Level of hospital	Public/Private	Providers attending births	N° de Births Annually
Argentina	1. Melchor Romero	1. Hospital Interzonal de Agudos y Crónicos	1. Provincial Health System (public)	Midwives and Ob-Gyn Physicians	1. 2800
	2. Guernica	2. Hospital Zonal General de Agudos	2. Public		2. 1800
	3. Florencio Varela		3. Public		3. 6000
Brazil	São Paulo	Hospital/Maternity Local (3 hospitals)	National System of Health Services (public)	Midwives, obstetric nurses, and Ob-Gyn Physicians	9330
Chile	Santiago, Iquique, Coquimbo, Rancagua, Valparaíso, Concepción, Ancud, Coyhaique	Hospital/Maternity Regional	National System of Health Services (public)	Midwives and Ob-Gyn Physicians	
Perú	Lima	Hospital Santa Rosa, Hospital Carrión	National System of Health Services (public)	Midwives and Ob-Gyn Physicians	400
Dominican Republic	San Francisco de Macorís	Hospital/Maternity Regional	National System of Health Services (public)	Nurses*, Ob-Gyn Physicians, Family Medicine Residents	1200 2492
Uruguay	Montevideo	Hospital/Maternity National	National System of Health Services (public)	Midwives and Ob-Gyn Physicians, Ob-Gyn residents	7689
	Paysandú	Hospital/Maternity Regional	National System of Health Services (public)	Midwives and Ob-Gyn Physicians, Ob-Gyn residents	1041

* Nurses are not nurse-midwives.

Table 2
Sociodemographic profile of study participants in 6 Latin American countries.

Sociodemographic Variables	Chile	Uruguay	Perú	Argentina	Rep. Dominicana	Brazil
	N= 1819	N=378	N=367	N= 177	N= 86	N= 182
Age mean (s.d)	23.8 (6.2)	23.1 (6.1)	26.7 (6.6)	23.4 (6.4)	20.9 (5.0)	24.1 (5.7)
Range of age	(13–46)	(15–45)	(14–44)	(14–42)	(14–38)	(15–41)
Marital Status N° (%)						
Married	226 (12.4)	35 (9.9)	52 (14.1)	20 (11.3)	4(4.6)	27 (15.1)
Single	791 (43.6)	110 (31.2)	57 (15.5)	35 (19.7)	13(15.1)	42 (23.5)
Cohabitant	799 (44)	207 (58.8)	258 (70.3)	122 (69)	69 (80.2)	110 (61.4)
Level of Education N° (%)						
Primary	267 (14.7)	134 (37.5)	83 (22.8)	82 (46.3)	28 (32.5)	47 (25.9)
Secondary	1259 (69.3)	217 (60.8)	209 (57.2)	95 (53.7)	47 (54.7)	125 (69)
University complete/incomplete	290(16)	6 (1.7)	73 (20.0)	0	11(12.8)	9 (5.1)

methods of pain relief only, whereas in Chile, only 20% of women used non-pharmacologic methods of pain relief only. The Dominican Republic was an outlier, in which no pain relief methods of any type were offered to women.

Ambulation (free walking) was common, with the lowest proportion (48%) of women ambulating in labour in Chile. In Uruguay (50%), Peru (65%), Brazil (85%) of women ambulated in labour. In this case, the Dominican Republic was an outlier in the other direction: 95% of women ambulated in labour, perhaps as a means to mitigate labour pain.

The presence of continuous support was highest in Uruguay (93%), Chile (75%) and Argentina (55%). In Peru, only 22% had continuous support, and in the Dominican Republic no continuous support was documented.

Findings in this study showed that in Chile, Uruguay and Peru, approximately 30% of women had continuous fetal monitoring. In Argentina, the Dominican Republic and Brazil, no women received continuous fetal monitoring, but more than 86% of women had intermittent monitoring. Peru was the country with the highest proportion of monitoring only on admission to labour and childbirth (37%).

Episiotomies are still prevalent in all countries. The country with the lowest rate of episiotomy was the Dominican Republic

(22%), and the highest rates were 52 and 53% (Chile and Peru, respectively).

The variation in practice across sites was perceived very differently by women in these countries, as documented through the scores of maternal well-being scale. The optimal score of maternal well-being had a prevalence of 43.5%. An adequate score was 30.8%, and a poor score was 25.5%. It should be stated explicitly that overall, only 25% of the total sample of women rated their well-being during labour and childbirth as poor. The lowest rates of well-being were documented from Peru, (31%) but even in that case, it is important to note that 69% of the women in Peru felt care was adequate or optimal. (Table 3).

Across countries, newborn biological outcomes were very similar. The mean gestational age of newborns was 39 weeks. The mean birth weight was 3282 g. Variations across countries were identified in terms of clinical practice within the maternity site. The greatest conformity in practice was found in newborn rooming-in with the mother; 93% or more of newborns roomed in with the mother. Skin-to-skin contact between mother and newborn immediately after childbirth was highest in Argentina and Peru (97% and 95%, respectively), followed by Brazil (91%), Chile (75%), the Dominican Republic (64%) and Uruguay (58%). Immediate breast feeding was achieved for 97% of newborns in Argentina,

Table 3
Obstetric Variables.

Variables	Chile	Uruguay	Perú	Argentina	Rep. Dominicana	Brazil
	N=1.819	N=378	N=367	N=177	N=86	N=182
Type of Birth (%)						
Spontaneous Vaginal	1.384 (77)	299 (79.9)	344 (93.7)	161 (91)	60 (69.8)	161 (88.5)
Forceps	75 (4.2)	5 (1.3)	7 (1.9)	2 (1.1)	0 (0)	5 (2.7)
Caesarean	337 (18.8)	70 (18.7)	16 (4.4)	14 (7.9)	26 (30.2)	16 (8.8)
Parity N° (%)						
Primiparous	872 (54.4)	97 (25.9)	–	–	46 (53.5)	108 (59.3)
Multiparous 1	685 (42.7)	147 (39.3)			18 (21.0)	52 (28.6)
Multiparous 2 o +	47 (2.9)	130 (34.7)			22 (25.5)	22 (12.1)
Gestational age (weeks)						
mean (s.d)	38.7 (1.8)	39.1 (1.4)	38.6 (1.7)	39.4 (1.8)	38.96 (1.7)	39 (1.6)
Nutrition (feeding) during labour (%)						
No oral nutrition	1.209 (68.9)	133 (39.9)	172 (47.1)	96 (54.2)	11 (12.8)	35 (19.2)
Liquid nutrition	323 (18.4)	99 (29.7)	135 (36.9)	77 (43.5)	44 (51.2)	5 (3.6)
Light nutrition	223 (12.7)	101 (30.3)	58 (15.8)	4 (2.3)	31 (36.0)	132 (77.2)
Parental hydration during labour (%)						
Yes	1.627 (90.6)	59 (17.8)	214 (59.3)	159 (89.8)	79 (96.3)	26 (16.2)
No	168 (9.4)	273 (82.2)	147 (40.7)	18 (10.2)	3 (3.7)	134 (83.8)
Fetal intrapartum monitoring (%)						
Initially	193 (10.7)	60 (18.6)	131 (36.7)	25 (14.1)	0	7 (3.8)
Intermittent during labour	1.073 (59.8)	170 (52.8)	112 (31.4)	152 (85.9)	86 (100)	175 (96.2)
Continuous during labour	529 (29.5)	92 (28.6)	114 (31.9)	0	0	0
Medically induced labour (%)						
Yes	1.553 (85.5)	217 (59.3)	223 (62.1)	126 (71.2)	27 (32.5)	133 (81.6)
No	264 (14.5)	147 (40.7)	136 (37.9)	51 (28.8)	56 (67.5)	30 (18.4)
Membrane status (%)						
Spontaneous rupture during labour	654 (36.2)	142 (39.8)	163 (45.7)	94 (53.1)	54 (64.3)	83 (45.6)
Artificial rupture during labour	943 (52.3)	182 (50.9)	73 (20.4)	72 (40.7)	11 (13.1)	92 (50.5)
Rupture during third stage	207 (11.5)	33 (9.3)	121 (33.9)	11 (6.2)	19 (22.6)	7 (3.9)
Method of pain relief (%)						
Pharmacological	800 (47.6)	15 (7.6)	25 (7.3)	68 (38.4)		14 (9.8)
No Pharmacological	342 (20.3)	182 (91.9)	310 (90.1)	85 (48)	–	100 (69.9)
Mixed	539 (32.1)	1 (0.5)	9 (2.6)	24 (13.6)		29 (20.3)
Free walking during labour (%)						
Yes	862 (47.8)	175 (49.6)	235 (64.5)	82 (46.3)	81 (95.3)	155 (85.2)
No	942 (52.2)	178 (50.4)	129 (35.4)	95 (53.7)	4 (4.7)	27 (14.8)
Use of birthing ball (%)						
Yes	337 (18.7)	23 (6.2)	6 (1.7)	24 (13.6)	0	32 (17.7)
No	1.466 (81.3)	349 (93.8)	348 (98.3)	153 (86.4)	86 (100)	149 (82.3)
Companion during labour (%)						
Yes	1.349 (74.7)	338 (92.9)	78 (22.1)	97 (54.8)	0	75 (41.2)
No	458 (25.3)	26 (7.1)	274 (77.9)	80 (45.2)	86 (100)	107 (58.8)
Maternal posture during third stage (%)						
Lithotomy	1.169 (76.7)	90 (25.5)	295 (80.4)	74 (41.8)	86 (100)	9 (5.1)
Other	356 (23.3)	267 (74.5)	72 (19.6)	103 (58.2)	0	169 (94.9)
Episiotomy (%)						
Yes	820 (53.2)	134 (35.8)	185 (52.3)	61 (34.5)	13 (22)	52 (28.6)
No	721 (46.8)	240 (64.2)	169 (47.7)	116 (65.5)	46 (78)	130 (71.4)
Companion during third stage (%)						
Yes	1.520 (85.3)	345 (94.5)	24 (6.5)	86 (48.6)	0	123 (68.7)
No	262 (14.7)	20 (5.5)	342 (93.4)	91 (51.4)	86 (100)	56 (31.3)
Wellbeing scores during labour and childbirth %						
Optimal	48.9	32.4	9.1	–	36.7	43.1
Adequate	29.3	40.1	59.5		41.8	37.6
Poor	22.3	27.6	31.4		21.8	19.3

followed by 88% in Peru, 79% in Brazil, 62% in Chile, 51% in Uruguay, and 46% in the Dominican Republic. Neonatal outcomes are presented in [Table 4](#).

Discussion

In general, the main results in this study showed heterogeneity of practice among the participating countries, but all shared a very medicalized model of care. While spontaneous vaginal deliveries occurred in almost 82% of the aggregate sample, caesarean section was the mode of childbirth for 16% of women. While a proportion of 82% vaginal births may seem a high proportion in comparison to other places, it is important to understand that this proportion was

among low risk women with expected vaginal deliveries (one of the inclusion criteria). If the planned caesarean sections (which were not considered in this study) are added to the total proportion of caesarean deliveries performed, this percentage may easily rise to 40%, consistent with data reported for the Regional Office of the Americas ([Gibbons et al., 2012](#); [Organisation for Economic Co-operation and Development \(OECD\), 2013](#)), and higher than recommendations provided by WHO ([WHO, 1985, 2015](#)). The study results are also consistent with past reports that health care and treatment of women in hospitals in Latin America during childbirth, although variable among institutions, continues to be based on a model that does not meet the definition of humanised care ([Belizan et al., 2005](#)).

According to the profile of midwifery services in Latin America

Table 4
Neonatal Variables.

Variables	Chile	Uruguay	Perú	Argentina	Rep. Dominicana	Brazil
	N=1.819	N=378	N=367	N=177	N=86	N=182
Paediatric gestational age (sem) (physical examination)						
mean (s.d)	38.9 (1.6)	38.8 (1.3)	38.5 (1.8)	39.7 (1.2)	39.5 (1.4)	39.1 (0.9)
Newborn weight (grs)						
Mean (s.d)	3.408 (486.4)	3.386 (506.1)	3.254 (420.7)	3.296 (387.1)	3.068 (486.1)	3.242 (361.1)
Skin to Skin N° (%)						
Yes	1.334 (74.6)	101 (57.7)	348 (94.8)	172 (97.2)	54 (64.3)	142 (91)
No	455 (25.4)	74 (42.3)	19 (5.2)	5 (2.8)	30 (35.7)	14 (9)
Early breastfeeding N° (%)						
Yes	1.119 (62)	138 (51.5)	319 (87.9)	171 (96.6)	39 (46.3)	117 (79.1)
No	687 (38)	130 (48.5)	44 (12.1)	6 (3.4)	45 (53.6)	31 (20.9)
Babies rooming-in N° (%)						
Yes	1.720 (94.6)	356 (96.7)	340 (93.1)	167 (94.4)	86 (100)	177 (97.3)
No	97 (5.4)	12 (3.3)	25 (6.9)	10 (5.6)	0	5 (2.7)

published by PAHO (Odberg and Stone, 2005). Chile and Peru are aligned with profile III, that is, having institutional and community professional midwifery and a model of the obstetric team. Argentina, Brazil, the Dominican Republic and Uruguay, on the other hand, are aligned with profile IV, i.e. institutional obstetric attention, with limited institutional and community professional midwifery. The Dominican Republic is the most limited, in that midwifery is non-existent, although efforts have been made to legislate the training and practice of this cadre of health professional twice since 2004, without success. Nevertheless, nurses act as midwives in the labour and childbirth setting in some public hospitals, and the data from the Dominican Republic comes from a regional hospital where this is the situation.

In any case, the profile of midwifery practices in the Americas concluded that autonomous, professional midwifery is underdeveloped in most countries of the region, that there are high levels of medicalization and high levels of caesarean sections (Odberg and Stone, 2005). Our study found that one decade after the publication of this PAHO document, the situation is the same.

Specifically, over 90% of low risk women receive parenteral hydration in Chile, Argentina and the Dominican Republic. In low risk women, the routine use of parenteral hydration does not improve birth outcomes (National Institute for Health and Care Excellence (NICE), 2014). Despite the literature, and despite related recommendations provided by WHO (1985, 2015), denial of oral fluids and food to labouring women, because of the potential aspiration if surgery ensues, is commonly practiced in Argentina, Chile, Peru and Uruguay. Professional organisations have noted that the risk of aspiration has decreased significantly in recent years, even when general anaesthesia is needed (Singata et al., 2013).

Labour augmentation which included amniotomy, was found in over 70% of deliveries in Argentina, Brazil and Chile. The evidence does not support amniotomy to reduce the rate of caesareans or to shorten labour length, and it may be associated with fetal heart rate decelerations and umbilical cord prolapse (Smyth et al., 2013).

Free ambulation and movement in labour facilitates labour progress and maternal well-being, upright positions in the first stage of labour shorten labours, decrease the use of epidural anaesthesia, diminish reported pain and have no adverse effects (Lawrence et al., 2013). Only Uruguay and Peru reported over 90% implementation of non-pharmacological pain relief methods. Only Peru, Brazil and the Dominican Republic reported ambulation during labour in more than 60% of women.

There is no evidence to support routine episiotomy (Frankman et al., 2009), yet in Chile and Peru, episiotomy rates are over 50%. In low risk women, intermittent auscultation (IA) of the fetal heart

is recommended over continuous fetal monitoring during labour (Maude et al., 2014; Ayres-de-Campos et al., 2015). Chile, Uruguay and Peru reported almost 30% of women with continuous fetal monitoring. Electronic fetal monitoring, if compared with IA, increases the rate of caesarean section and vacuum/forceps, and there is no difference in perinatal mortality or Apgar scores less of 7 at 5 minutes (Devane et al., 2012; Alfrevic et al., 2013).

Another strategy for the mitigation of pain is the continuous support of a significant other in labour. The presence of a companion of choice is strongly recommended by WHO to improve labour outcomes and women's satisfaction with care at birth (WHO, 2015). Also a Cochrane review reports that continuous labour support promotes more spontaneous vaginal birth, greater maternal satisfaction, shorter labour, and less use of pain medications (Hodnett et al., 2013). Companion of choice was currently observed in most of the participants countries, except the Dominican Republic.

It is interesting to mention that in countries where there exists a national law to allow companion of choice at birth, for example, Argentina (Gobierno Argentina, 2004), presence of a companion of choice is reported only in 55% of births. Similarly in Peru, where there is a ministry resolution for companion of choice (Ministerio Salud Peru, 2011), only 22% of women had a companion, demonstrating that regulation alone does not guarantee the implementation of a practice.

An area of strength for all countries was skin-to-skin contact practice, this practice was achieved in more than 60% of all births, (Moore et al., 2012). Immediate breast feeding is also frequent, with percentages around 90% in countries like Argentina and Peru, similar to findings shown in developed countries (Australian Institute of Health and Welfare, 2011). Babies rooming-in with mothers is highly observed, this practice facilitates and promotes exclusive breast feeding (Jaafar et al., 2012).

Finally, the experience of care perceived by women is a fundamental aspect of quality of care for maternal and newborn health (Tunçalp et al., 2015). In this study, although the majority of perceptions of wellbeing during labour was considered adequate or optimum, it is concerning that almost 1 out of 4 mothers reported their general well-being as poor. It is of concern that women's perception of well-being was assessed through a Likert scale which somehow does not represent the full or complete feeling of the lived experience of childbirth. The research conducted in Chile incorporated one qualitative objective, not implemented in this study, in which women took part in focus group discussions. In the group discussions women were able to voice complaints about the care they received. The study reported that their complaints were not listened to, that women had not been

informed about procedures and in some instances they reported that they were mistreated by the health team (Binfa et al., 2013, 2016). The fuller qualitative component of the Chilean study was not feasibly replicated in all 6 countries, not because of a recognition of its importance, but because of limited resources.

While a shared ideology of humanisation is necessary for change, (Davis-Floyd, 2007), it alone is insufficient to enact change. In particular data provided from Chile showed that no changes have occurred after the implementation of the Guidelines for the humanisation of childbirth promoted by the Ministry of Health in 2007 (Ministerio Salud Chile, 2007; Binfa et al., 2016). Findings in this study showed that despite recommendations provided from WHO in 1985 (WHO, 1985) and further confirmed in 2015 by the most important related international associations (White Ribbon Alliance, International Pediatric Association, & World Health Organization, 2015) obstetric procedures are still over utilised. By reporting a situational analysis of midwifery care in 6 LAC countries, the authors hope the results of this study will serve as a baseline for discussion and action among midwives across LAC countries to assess future improvement of quality of care for pregnant and labouring women, in accordance with the vision elaborated by the WHO (Tunçalp et al., 2015).

Limitations

Although the main objective of this study was to provide a description of the current practice of midwifery care in the participating countries, it is important to note that the only country that reported national data was Chile. The rest of the countries represented one site (Dominican Republic), to two or three sites in the rest of the 5 participating countries. Also, all of samples were convenience samples, and data was collected over variable time periods that were feasible for the research team in each country. Thus, the results of this study cannot be generalised to represent the situation of care for the entire country. Another limitation was the missing data from some countries. Although all countries shared the approved research protocol, countries have specific, local situations that made the implementation of the research protocol difficult at times. The purpose of this study was to provide a baseline for comparison, as countries define strategies for action to reach high standards for quality of maternal and newborn care. To our knowledge, this is the first study of its kind to examine specific midwifery care practices across Latin America and the Caribbean countries.

Conclusions and implications for practice

Despite the regional effort to promote physiologic birth, there remains high levels of medical intervention in the births of low risk women. More research is needed to understand why such high levels of intervention exist and to test the implementation of evidence-based practices in local settings. It is also an important concern taking into consideration the women's perception and satisfaction with their experience of care during childbirth.

Conflict of interest

No conflict of interest has been declared by the author(s).

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References

- ACNM., 2010. ACNM Data Set - Intrapartum Care. Retrieved from (<http://www.acnm.org/siteFiles/publications/dataset-intra-partum.pdf>).
- Alfirevic, Z., Devane, D., Gyte, G.M., 2013. Continuous cardiotocography (CTG) as a form of electronic fetal monitoring (EFM) for fetal assessment during labour. The Cochrane Database of Systematic Reviews 5, CD006066. <http://dx.doi.org/10.1002/14651858.CD006066.pub2>.
- Australian Institute of Health and Welfare, 2011. Headline Indicators for children's health, development and wellbeing.
- Ayres-de-Campos, D., Spong, C.Y., Chandrachan, E., 2015. FIGO consensus guidelines on intrapartum fetal monitoring: Cardiotocography. *The International Journal of Gynecology and Obstetrics* 131 (1), 13–24.
- Barcena, A., Prado, A., 2016. El imperativo de la igualdad: por un desarrollo sostenible en América Latina y el Caribe (English Translation: Barcena and Prado: The imperative of equality for sustainable development in Latin America and the Caribbean. Ministry of Health Chile Ministry of Health Peru).
- Belizan, J.M., Cafferata, M.L., Belizan, M., Tomasso, G., Chalmers, B., 2005. Goals in maternal and perinatal care in Latin America and the Caribbean. *Birth* 32, 210–218. doi:10.1111/j.0730-7659.2005.00372.x.
- Binfa, L., Pantoja, L., Ortiz, J., Gurovich, M., Cavada, G., 2013. Assessment of the implementation of the model of integrated and humanised midwifery health services in Santiago, Chile. *Midwifery* 29, 1151–1157. <http://dx.doi.org/10.1016/j.midw.2013.07.001>.
- Binfa, L., Pantoja, L., Ortiz, J., Gurovich, M., Cavada, G., Foster, J., 2016. Assessment of the implementation of the model of integrated and humanised midwifery health services in Chile. *Midwifery* 35, 53–61. <http://dx.doi.org/10.1016/j.midw.2016.01.018>.
- Bodner, K., Wierani, F., Grunberger, W., Bodner-Adler, B., 2011. Influence of the mode of delivery on maternal and neonatal outcomes: a comparison between elective cesarean section and planned vaginal delivery in a low-risk obstetric population. *Archives of Gynecology and Obstetrics* 283, 1193–1198. <http://dx.doi.org/10.1007/s00404-010-1525-y>.
- Davis-Floyd, R., 2007. Changing childbirth: the Latin American example. *Midwifery Today International Midwife* 84, 9–13.
- Devane, D., Lalor, J.G., Daly, S., McGuire, W., Smith, V., 2012. Cardiotocography versus intermittent auscultation of fetal heart on admission to labour ward for assessment of fetal wellbeing. The Cochrane Library.
- ECLAC, 2004. Open-ended Meeting of the Presiding Officers of the ECLAC sessional Ad Hoc Committee on Population and Development. International Mother Baby Childbirth Organization. Retrieved from (<http://www.imbci.org>).
- Frankman, E.A., Wang, L., Bunker, C.H., Lowder, J.L., 2009. Episiotomy in the United States: has anything changed? *American Journal of Obstetrics and Gynecology* 200, 573, e571–573. e577.
- Gialloreti, L.E., Benvenuto, A., Benassi, F., Curatolo, P., 2014. Are caesarean sections, induced labor and oxytocin regulation linked to autism spectrum disorders? *Medical Hypotheses* 82, 713–718. doi:S0306-9877(14)00113-3 [pii] 10.1016/j.mehy.2014.03.011.
- Gibbons, L., Belizan, J.M., Lauer, J.A., Betran, A.P., Meriardi, M., Althabe, F., 2012. Inequities in the use of cesarean section deliveries in the world. *American Journal of Obstetrics and Gynecology* 206, 1–19. <http://dx.doi.org/10.1016/j.ajog.2012.02.026>.
- Gobierno Argentina, 2004. Ley Nacional 25.929. Derechos de Padres e Hijos durante el Proceso de nacimiento. Government of Argentina. National Law 25.929. Parents and Children's Rights during Childbirth, (2004).
- Greener, D., 1991. Development and validation of the nurse-midwifery clinical data set. *International Journal of Nursing and Midwifery* 36, 174–183.
- Hodnett, E.D., Gates, S., Hofmeyr, G.J., Sakala, C., Weston, J., 2013. Continuous support for women during childbirth. *Cochrane Database of Systematic Reviews* 7.
- Hung, H.W., Yang, P.Y., Yan, Y.H., Jou, H.J., Lu, M.C., Wu, S.C., 2015. Increased postpartum maternal complications after cesarean section compared with vaginal delivery in 225 304 Taiwanese women. *The Journal of Maternal-Fetal & Neonatal Medicine* 10, 1–8. <http://dx.doi.org/10.3109/14767058.2015.1059806>.
- Jaafar, S.H., Lee, K.S., Ho, J.J., 2012. Separate care for new mother and infant versus rooming-in for increasing the duration of breastfeeding. *Cochrane Database of Systematic Reviews*, 9.
- Kristensen, K., Henriksen, L., 2015. Cesarean section and disease associated with immune function. *The Journal of Allergy and Clinical Immunology* 2, 587–590. doi:S0091-6749(15)01103-3 [pii] 10.1016/j.jaci.2015.07.040.
- Lawrence, A., Lewis, L., Hofmeyr, G.J., Styles, C., 2013. Maternal positions and mobility during first stage labour. *Cochrane Database of Systematic Reviews* 8, CD003934.
- Maude, R.M., Skinner, J.P., Foureur, M.J., 2014. Intelligent structured intermittent auscultation (ISIA): evaluation of a decision-making framework for fetal heart monitoring of low-risk women. *BMC Pregnancy and Childbirth* 14, 1.
- Merenstein, D.J., Gatti, M.E., Mays, D.M., 2011. The association of mode of delivery

- and common childhood illnesses. *Clin. Pediatr. (Phila.)* 50, 1024–1030. doi:0009922811410875 [pii] 10.1177/0009922811410875.
- Ministerio Salud Chile, 2007. Manual de Atención Personalizada en el Proceso reproductivo, Santiago, Chile. Ministry of Health Chile. (2007). Manual for Personalised Care during the reproductive Process.
- Ministerio Salud Peru, 2011. Guía Técnica para la Psicoprofilaxis obstétrica y estimulación prenatal. Ministry of Health Peru. Technical Guidelines for Obstetric Prophylaxis and Antenatal Stimulation., (2011).
- Moore, E.R., Anderson, G.C., Bergman, N., Dowswell, T., 2012. Early skin-to-skin contact for mothers and their healthy newborn infants. *Cochrane Database of Systematic Reviews* 5.
- National Institute for Health and Care Excellence (NICE), 2014. Intrapartum care: care of healthy women and their babies during childbirth.
- O'Neill, S.M., Agerbo, E., Kenny, L.C., et al., 2014. Cesarean section and rate of subsequent stillbirth, miscarriage, and ectopic pregnancy: a Danish register-based cohort study. *PLoS Medicine* 11, e1001670. <http://dx.doi.org/10.1371/journal.pmed.1001670>, PMEDICINE-D-13-03953 [pii].
- Odberg, P., Stone, K, 2005. Profiling of Midwifery Services in the America: Models of Childbirth Care. In PAHO (Ed.).
- Organisation for Economic Co-operation and Development (OECD), 2013. Health at a Glance 2013. OECD Publishing, Paris.
- Silver, R.M., 2010. Delivery after previous cesarean: long-term maternal outcomes. *Seminars in Perinatology* 34, 258–266. doi:S0146-0005(10)00030-3 [pii] 10.1053/j.semperi.2010.03.006.
- Singata, M., Tranmer, J., Gyte, G.M., 2013. Restricting oral fluid and food intake during labour. *Cochrane Database of Systematic Reviews* 8, CD003930. <http://dx.doi.org/10.1002/14651858.CD003930.pub3>.
- Smyth, R., Markham, C., Dowswell, T., 2013. Amniotomy for shortening spontaneous labour. *Cochrane Database of Systematic Reviews* 6.
- Solheim, K.N., Esakoff, T.F., Little, S.E., Cheng, Y.W., Sparks, T.N., Caughey, A.B., 2011. The effect of cesarean delivery rates on the future incidence of placenta previa, placenta accreta, and maternal mortality. *The Journal of Maternal-Fetal & Neonatal Medicine* 24, 1341–1346. <http://dx.doi.org/10.3109/14767058.2011.553695>.
- Taljaard, M., Donner, A., Villar, J., et al., 2009. Understanding the factors associated with differences in caesarean section rates at hospital level: the case of Latin America. *Paediatric and Perinatal Epidemiology* 23, 574–581. doi:PPE1072 [pii] 10.1111/j.1365-016.2009.01072.x.
- Tunçalp, Ö, Were, W., MacLennan, C., et al., 2015. Quality of care for pregnant women and newborns—the WHO vision. *BJOG: An International Journal of Obstetrics and Gynaecology* 122, 1045–1049.
- Umenai, T., Wagner, M., Page, L.A., et al., 2001. Conference agreement on the definition of humanization and humanized care. *The International Journal of Gynecology and Obstetrics* 75, S3–S4.
- Uribe, C., Contreras, A., Villarroel, L., Rivera, S., Bravo, P., Cornejo, M., 2008. Bienestar materno durante el proceso de parto: desarrollo y aplicación de una escala de medición. *Revista Chilena de Obstetricia y Ginecología* 73 (1), 4–10.
- White Ribbon Alliance, International Pediatric Association, & World Health Organization, 2015. Mother – baby friendly birthing facilities. *The International Journal of Gynecology and Obstetrics* 128, 95–99.
- WHO, 1985. Declaration of Fortaleza: appropriate technology for delivery. *Lancet* 2, 436–437.
- WHO, 2015. Mother-baby friendly birthing facilities. *The International Journal of Gynecology and Obstetrics* 128, 95–99. doi:S0020-7292(14)00545-1 [pii] 10.1016/j.ijgo.2014.10.013.
- WMA, 2004. World Medical Association. Declaration of Helsinki. Retrieved from (<http://www.wma>).