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CLINICAL ARTICLE

Obstetric care for resident immigrant women in Argentina compared with Argentine women

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ABSTRACT

Objective: To evaluate inequities in obstetric care in Argentina between women from Argentina and resident immigrants. *Methods:* A secondary analysis was performed using data generated from a prospective, multicenter, descriptive study conducted in 2008 that assessed perinatal care in 12 public hospitals in the city of Buenos Aires and 70 public hospitals in Buenos Aires Province. In the original study, eligible women answered questions about their obstetric history, sociodemographic characteristics, and prenatal and intrapartum care within 48 hours of delivery. In the present analysis, the associations between nationality and prenatal care, intrapartum care, and perinatal outcome were determined. *Results:* The study included 10 898 women. The sociodemographic characteristics were similar between the groups, although the proportion of adolescents was higher among Argentines than among immigrants (20.1% versus 12.5%), whereas immigrant women were less educated (30.7% of the immigrant women reported 0–6 years of education compared with 7.3% of Argentines). Likewise, there were few differences in obstetric care during pregnancy and delivery, and the pregnancy outcomes were also similar between the groups. *Conclusion:* There were few clinically significant differences in medical care between Argentine women and resident immigrant women during the prepartum and intrapartum periods.

1. Introduction

Inequities and disparities in health care are present throughout the world. Over the past 15 years, growing concern about inequality in health care and access to care, particularly in terms of maternal–fetal health, has led to the publication of numerous research studies [1–9]. The majority of these studies focus on patient characteristics, as opposed to healthcare provider bias, as the cause for disparities, and the studies tend to assess outcomes rather than deviations from generally accepted standards of care.

There is mounting concern internationally about the impact that immigration might have on a country's healthcare system and, importantly, about the quality of care that immigrants receive compared with the native population [10]. Quality of care can be measured objectively by evaluating whether certain processes are implemented that are considered to be standard of care, or by evaluating outcomes [6,11]. Studies performed in high-income countries have shown lower quality of care during pregnancy and poorer pregnancy outcomes among immigrants compared with native women [12,13]. In countries with a large resident immigrant population, it is increasingly important to explore whether there is an association between nationality (that is, country of birth) and obstetric care, and to work to address any correctable disparities.

Argentina is one such country with a large resident immigrant population, which is estimated to constitute 4.5% of the total population based on the 2010 census [14]. Argentina's healthcare system is based on universal public coverage, financed through taxes; it is free of charge for both citizens and foreigners; identification is not required to access care. The healthcare system has 3 sectors: the social security sector, the public sector, and the private sector, financed through obligatory or voluntary insurance schemes. Those who do not have formal work or cannot afford private insurance attend public health institutions. Public maternity hospitals are either general hospitals with maternity services or specific maternity hospitals, and are free of charge.

With these details in mind, a retrospective secondary analysis of a large questionnaire-generated Argentine database was initiated to examine inequities in prenatal and intrapartum care among women born in Argentina versus immigrants living in Argentina.

2. Materials and methods

In 2008, the Ministry of Health of the Province of Buenos Aires conducted a perinatal survey [15] at the maternity wards of 82 public hospitals, including 70 of the busiest maternity wards in the Province of Buenos Aires and 12 maternity wards in the capital of Buenos Aires.

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All births (10 087 deliveries) during the month of September were included and 9664 (95.8%) mothers were interviewed. The Province of Buenos Aires is the most populated province in Argentina; it comprises 39% of the country's population with a total of 15 594 428 inhabitants, 5% of which are immigrants. In 2010, the Ministry of Health reported 288 831 live births in the Province of Buenos Aires, resulting in a birth rate of 18.9% [16]. In the Province of Buenos Aires, as in the entire country, 99% of deliveries occur in hospitals [17]. Prenatal and intrapartum care at hospitals is provided free of charge by midwives and medical doctors (residents, general practitioners, and obstetricians/gynecologists).

The primary objective of the original study was to evaluate medical care during pregnancy and to analyze demographic characteristics of the mothers to determine the impact of socioeconomic factors on the quality of maternal–fetal health care.

The survey included women who delivered a live-born or stillborn infant with a gestational age of at least 22 weeks or a birth weight of more than 500 g at one of the study sites, and women who delivered at home but were hospitalized in the obstetrics department at one of the study sites during the postpartum period.

The period of data collection was from September 1 to September 30, 2008. Data were collected from 2 sources. Within 48 hours of delivery, a questionnaire-guided interview was conducted to obtain information about the nationality (defined by the country of birth), prenatal care, care during delivery, use of contraception, and socioeconomic status. In addition, laboratory information (hemogram, urinalysis, blood glucose, Venereal Disease Research Laboratory [VDRL] screening, Chagas screening, HIV screening, toxoplasmosis screening) and clinical information for which written documentation was required (type of delivery, presence of eclampsia, receipt of magnesium sulfate, receipt of corticosteroids, and clinical outcomes of the neonate) was obtained directly from the medical records. The interviews were conducted by selected midwives at each hospital who had attended a scheduled interview workshop led by the study coordinator. The workshop consisted of a review of the study's manual of operations and included information on informed consent collection and data protection.

Study supervisors monitored the data collection, visiting each site and reviewing a random sample of questionnaires to ensure that they were completed fully and that the data matched hospital records.

The study received ethics approval from several ethics committees: the institutional review board (IRB) of the Center for Medical Education and Clinical Research (CEMIC), an independent IRB that is registered with the US Office for Human Research Protections; the Central Ethics Committee, which is an IRB overseeing all research studies conducted at hospitals in the Province of Buenos Aires; an independent regional

Fig. 1. Nationalities of the women included in the study (n = 10 898).

ethics committee at Hospital Durand, Buenos Aires; and from each participating hospital. Written informed consent was obtained prior to participation in the survey, and confidential information was stored and protected as appropriate.

The present analysis was a secondary analysis of data from the survey. The primary objective was to determine if there were significant differences in prenatal and intrapartum care depending on nationality (resident immigrants living in Argentina versus Argentine women). A secondary objective was to assess perinatal outcomes in these 2 groups. All 10 898 women from the original study were included in the present analysis, including 49 (0.4%) women who delivered at home but were hospitalized during the postpartum period.

The women's nationality was determined based on a survey question about the country of origin; the questionnaire listed common countries of origin in Argentina (Argentina, Bolivia, Paraguay, Brazil, Uruguay, Chile, Peru, Colombia, Korea, China, and Japan) as potential answers. The following variables served as measures of prenatal care: iron and folate supplementation, anti-tetanus vaccination, number of sonograms, basic laboratory tests, cervical study, and screening studies for HIV, VDRL, and Chagas. Measures of intrapartum care comprised treatment with magnesium sulfate if eclampsia was present, treatment with corticosteroids if indicated, type of delivery, episiotomy, and newborn placed on breast within the first hour of life. Measures of perinatal outcome were as follows: stillbirth, neonatal mortality, hospitalization of the newborn for more than 6 hours, preterm birth (less than 37 weeks of gestation), birth weight of 2500 g or less, and Apgar scores of 6 or less at 1 and 5 minutes.

Demographic, socioeconomic and obstetric history information collected from the original questionnaire included years of education, number of people living in a household, relationship status, parity, and total monthly income earned by those in the household. Based on the total monthly income and the number of household occupants, the women were categorized as "indigent," "poor," or "not poor" as determined by a chart with generally accepted cutoffs for monthly income. The chart was generated by Argentina's Ministry of Health for the entire country based on a method used in the National Nutrition and Health Survey. It compares the number of people living in the home versus total monthly income to categorize levels of poverty (i.e. indigent, poor, not poor). The horizontal axis includes the number of occupants (from 1 person up to 15 people). The vertical axis includes a minimum amount of monthly income and maximum amount for each sized household. Participants were then asked, based on their household size, whether the household made less than the minimum shown in the chart, more than the minimum but less than the maximum, or more than the maximum. This enabled the participant to be categorized into 1 of the 3 listed categories. Reference data to determine minimums and maximums for monthly income for each sized household were obtained from data collated by Argentina's National Institute of Statistics and Census in August 2010 [14]. The χ^2 test was used to compare the characteristics between Argentine women and resident immigrants.

To determine whether obstetric care was different for Argentine women and resident immigrants, a model was created with nationality as the independent variable; the dependent variables were those representing prenatal and intrapartum care and perinatal outcomes. Because the care received might have been affected by hospital factors and demographic characteristics, the analysis was adjusted for the location of the hospital (capital of Buenos Aires versus Province of Buenos Aires) and maternal baseline variables such as age, years of education, number of people living in the house, civil status, and parity. Generalized estimating equations were applied to adjust for potential correlations between women treated in the same hospital, assuming an exchangeable correlation structure and a logit link function with a binomial distribution.

Data were analyzed using SPSS version 15.0 (IBM, Armonk, NY, USA). $P < 0.05$ was considered statistically significant.

3. Results

The present study included 10 898 women, 9177 (84.2%) of whom were born in Argentina and 1716 (15.7%) were resident immigrants; data on nationality were missing for 5 (0.05%) women (Fig. 1). Of the resident immigrants, 1558 (90.8%) were from bordering countries, 130 (7.6%) were from the remaining countries of South America, and 28 (1.6%) were from overseas.

Table 1 shows the demographic and socioeconomic characteristics of the women. Adolescent pregnancies (maternal age below 20 years) were more common among Argentines; Argentine women were also more likely to have higher parity and to live in larger households. Conversely, resident immigrants were less educated, with 30.7% reporting 0–6 years of education compared with 7.3% in the Argentine group ($P < 0.001$).

In terms of prenatal care, Argentine women were more likely than resident immigrants to have paid more than 4 prenatal visits, to have received iron and/or folate supplementation, to have received prenatal care free of charge, to have received food or welfare support during pregnancy, and to have had HIV screening (Table 2). Both the unadjusted odds ratios and the adjusted odds ratios (adjusted by age, years of education, number of people living in the house, civil status, parity, and hospital location) for these factors were statistically significant but numerically small.

Likewise, there were no significant differences in the majority of variables in terms of care received during labor and delivery between the groups (Table 3). However, Argentine women were significantly more likely to have received family support during labor and delivery.

Finally, there were no significant differences in the majority of variables in terms of perinatal outcomes between the 2 groups (Table 4),

Table 1
Demographic and socioeconomic characteristics and obstetric history (n = 10 898).[a]

Parameter	Argentine women	Immigrant women	*P* value
Age, y			
<20	1826/9084 (20.1)	212/1695 (12.5)	<0.001
20–34	6314/9084 (69.5)	1283/1695 (75.7)	
≥35	944/9084 (10.4)	200/1695 (11.8)	
Years of education completed			
0–6	659/9066 (7.3)	520/1692 (30.7)	<0.001
7–11	6495/9066 (71.6)	795/1692 (47.0)	
>11	1912/9066 (21.1)	377/1692 (22.3)	
Number of people living in house			
2–5	5106/9123 (56.0)	1210/1700 (71.2)	<0.001
6–10	3672/9123 (40.3)	463/1700 (27.2)	
>10	345/9123 (3.8)	27/1700 (1.6)	
Relationship status			
Stable couple	7878/9123 (86.3)	1517/1699 (89.3)	0.002
Unstable couple	306/9123 (3.4)	39/1699 (2.3)	
Single	948/9123 (10.4)	143/1699 (8.4)	
Socioeconomic status[b]			
Indigent	3084/8984 (34.3)	575/1674 (34.4)	0.171
Poor	3091/8984 (34.4)	614/1674 (36.7)	
Not poor	2129/8984 (23.7)	360/1674 (21.5)	
Not sure	680/8984 (7.6)	125/1674 (7.5)	
Used contraception prior to this pregnancy	4378/7670 (57.1)	773/1492 (51.8)	<0.001
Parity (including most recent birth)			
1	3175/9140 (34.7)	673/1713 (39.3)	<0.001
2–3	3829/9140 (41.9)	781/1713 (45.6)	
≥4	2136/9140 (23.4)	259/1713 (15.1)	
Had a stillbirth in any pregnancy (including most recent)	440/8041 (5.5)	89/1523 (5.8)	0.559

[a] Values are given as number/total number (percentage).
[b] Women stated whether the total monthly income in their home was above or below generally accepted cutoffs based on the number of occupants.

Table 2
Prenatal care.

Parameter	Argentine women [a]	Immigrant women[a]	Unadjusted analysis		Adjusted analysis[b]	
			Odds ratio (95% CI)	*P* value	Odds ratio (95% CI)	*P* value
More than 4 prenatal visits	6662/8719 (76.4)	1151/1554 (74.1)	1.20 (1.06–1.36)	0.004	1.28 (1.10–1.48)	0.001
Received iron and/or folate supplementation	6366/8620 (73.9)	1112/1618 (68.7)	1.24 (1.09–1.42)	0.002	1.21 (1.05–1.39)	0.007
Not required to pay for prenatal care	3652/9052 (40.3)	620/1697 (36.5)	1.15 (1.04–1.29)	0.010	1.15 (1.01–1.31)	0.030
Received food or welfare support during pregnancy	3105/9090 (34.2)	346/1697 (20.4)	1.87 (1.58–2.20)	<0.001	1.79 (1.49–2.16)	<0.001
Anti-tetanus vaccination	7699/9009 (85.5)	1428/1695 (84.3)	1.05 (0.90–1.23)	0.529	1.08 (0.92–1.26)	0.351
Sonogram performed	8309/9021 (92.1)	1539/1698 (90.6)	1.11 (0.94–1.30)	0.223	1.14 (0.96–1.34)	0.130
Basic laboratory tests	8195/9013 (90.9)	1520/1692 (89.8)	1.09 (0.90–1.32)	0.381	1.15 (0.93–1.43)	0.205
Cervical study	4140/8915 (46.4)	789/1677 (47.1)	0.97 (0.87–1.09)	0.647	1.01 (0.90–1.14)	0.825
HIV screening	8128/8926 (91.1)	1476/1673 (88.2)	1.25 (1.05–1.49)	0.014	1.34 (1.10–1.62)	0.003
VDRL screening	8144/8929 (91.2)	1502/1669 (90.0)	1.01 (0.83–1.23)	0.932	1.03 (0.82–1.29)	0.807
Chagas test	7882/8907 (88.5)	1446/1665 (86.8)	1.08 (0.89–1.32)	0.455	1.17 (0.94–1.45)	0.153

Abbreviations: CI, confidence interval; VDRL, Venereal Disease Research Laboratory.
[a] Values are given as number/total number (percentage).
[b] Adjusted for age, years of education, number of people living in the house, civil status, parity, and hospital location.

although the statistical analysis showed a lower incidence of low birth weight in the group of immigrants.

4. Discussion

Overall, the present investigation revealed few differences in obstetric care in association with nationality in the Province of Buenos Aires. For the majority of the variables investigated, women seem to have received the same interventions irrespective of their nationality. There were no truly notable differences in quality of care when considering coverage, including the administration of basic screening laboratory tests, vaccines, and iron or folate supplementation in relation to nationality.

When comparing the women's demographic characteristics, Argentine women were more likely to be of adolescent age, live in a

Table 3
Care received during labor and delivery and postpartum.

Intrapartum care	Argentine women[a]	Immigrant women[a]	Unadjusted analysis		Adjusted analysis[b]	
			Odds ratio (95% CI)	*P* value	Odds ratio (95% CI)	*P* value
Received magnesium sulfate[c]	39/58 (67.2)	5/5 (100)	—	—	—	—
Received corticosteroids prior to delivering[d]	120/220 (54.6)	15/30 (50.0)	1.28 (0.61–2.70)	0.518	1.12 (0.46–2.76)	0.801
Accompanied by family member, partner, or chosen person during labor	1642/9138 (18.0)	262/1706 (15.4)	1.14 (1.04–1.25)	0.004	1.16 (1.05–1.28)	0.004
Accompanied by family member, partner, or chosen person during the delivery	965/9130 (10.6)	142/1702 (8.3)	1.37 (1.10–1.71)	0.005	1.33 (1.06–1.67)	0.014
Cesarean delivery	2484/9155 (27.1)	427/1715 (24.9)	1.09 (0.97–1.23)	0.132	1.08 (0.95–1.23)	0. 233
Episiotomy[e]	2911/6632 (43.9)	591/1274 (46.4)	0.89 (0.79–1.01)	0.054	1.05 (0.89–1.24)	0.568
Newborn was placed on breast within first hour of life	6197/9055 (68.4)	1092/1691 (64.6)	0.95 (0.87–1.04)	0.293	0.94 (0.84–1.04)	0.212
Fetus was lying on the side or in supine position[f]	4158/8520 (48.8)	703/1580 (44.5)	1.08 (0.96–1.21)	0.182	1.08 (0.96–1.21)	0.220

Abbreviations: CI, confidence interval.
[a] Values are given as number/total number (percentage).
[b] Adjusted for age, years of education, number of people living in the house, civil status, parity, and hospital location.
[c] Only women with a diagnosis of eclampsia were considered. No odds ratios were estimated because of the small number of women in the immigrants group.
[d] Only women who delivered before 34 weeks of pregnancy or whose child weighed 2000 g or less were considered.
[e] Women with a cesarean delivery were excluded from the analysis.
[f] Information obtained during the interview.

Table 4
Perinatal outcomes.

Outcome	Argentine women[a]	Immigrant women[a]	Unadjusted analysis		Unadjusted analysis[b]	
			Odds ratio (95% CI)	*P* value	Odds ratio (95% CI)	*P* value
Stillbirth[c]	58/8677 (0.7)	18/1640 (1.1)	0.62 (0.35–1.09)	0.0973	0.75 (0.41–1.37)	0.3514
Neonatal mortality[d]	64/952 (6.7)	16/197 (8.1)	0.84 (0.51–1.37)	0.4763	1.04 (0.62–1.73)	0.8887
Newborn hospitalized for >6 hours	1027/9144 (11.2)	201/1711 (11.8)	0.96 (0.81–1.14)	0.6387	0.99 (0.83–1.19)	0.9274
Gestational age at birth <37 weeks	603/9081 (6.6)	93/1697 (5.5)	1.22 (0.94–1.59)	0.1303	1.23 (0.91–1.64)	0.1732
Birth weight ≤2500 g[e]	738/9117 (8.1)	101/1700 (5.9)	1.39 (1.13–1.71)	0.0015	1.43 (1.14–1.80)	0.0021
Apgar score ≤6 at 1 minute[e]	339/9077 (3.7)	76/1693 (4.5)	0.82 (0.64–1.07)	0.1414	0.85 (0.63–1.15)	0.2946
Apgar score ≤6 at 5 minutes[e]	63/9077 (0.7)	11/1692 (0.7)	1.03 (0.56–1.91)	0.9180	1.07 (0.55–2.08)	0.8520

Abbreviations: CI, confidence interval.
[a] Values are given as number/total number (percentage).
[b] Adjusted for age, years of education, number of people living in the house, civil status, parity, and hospital location.
[c] The death was defined by the mother.
[d] Only infants who were hospitalized were considered.
[e] First child born in the case of twins.

larger household, and have a higher parity. By contrast, immigrant women were generally less educated with 30.7% having received less than 7 years of education, which might have confounded the findings. However, these differences did not influence prenatal and perinatal care, as shown in the unadjusted and adjusted logistic regression analyses.

The present study has many strengths. A large sample size of 10 898 women was obtained, increasing the statistical power. Argentina's population of resident immigrants is well represented in the present sample as shown by a comparison with the 2010 census [14]. In addition, the sample was drawn from a large number of hospitals across the entire Province of Buenos Aires, during a specific time period. However, it cannot be said for certain whether the present sample and findings are representative of the situation in the entire country. The percentage of missing data was generally low, with less than 5% of data missing for any variable with the exception of "used contraception prior to this pregnancy" and "had a previous stillbirth in any pregnancy."

The study also has a number of limitations. Because of the large sample size, the clinical relevance of any statistically significant differences must be considered carefully. For example, although a significant difference was found for the variable "newborn was placed on breast within first hour of life," the numeric difference was only 4%, which is unlikely to be of much importance clinically. Additionally, the study included subpopulations of immigrants from distinct regions, but it was only possible to consider resident immigrants as a whole because of the lack of power to detect inequities in obstetric care for any of the subpopulations. Given that this was a secondary analysis of an observational study, it was also not possible to consider other pertinent data from the immigrants that might have affected the results, such as length of residence in Argentina, fluency in Spanish, immigration status, or ethnicity.

Another particularly noteworthy limitation is that the original questionnaire was not designed to assess the women's perception of the quality of care they received. Instead, the present analysis focused on coverage, that is, whether the appropriate laboratory tests were performed and whether certain treatments were administered when needed. The questionnaire did not assess whether the implemented treatment was appropriate (e.g. whether a corticosteroid dose was appropriate based on evidence and accepted protocols).

In conclusion, the present study identified few differences by nationality in terms of the obstetric care delivered in the Province of Buenos Aires. Although this is certainly a positive result, other studies with an additional qualitative component, evaluating healthcare provider bias and women's perceptions of the quality of care received, may further enhance our understanding of inequalities in obstetric care in Argentina.

Conflict of interest

The authors have no conflicts of interest.

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