Prenatal and Birth Care of Roma Women

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Abstract

Background: The reproductive health of Roma women has been poorly studied. It is important to determine the follow-up care received by Roma women from pregnancy to the first postpartum visit, together with neonatal outcomes, to improve prenatal care and maternal–child outcomes.

Objective: To examine differences in prenatal care and maternal–infant outcomes between Roma and non-Roma women.

Methods: A retrospective longitudinal study of 122 pregnant women (28 Roma and 94 non-Roma women) was recruited in seven primary care centers in three districts of Asturias (Spain). Sociodemographic variables, prenatal control, birth characteristics, feeding, and neonatal outcomes (gestational age, weight, and APGAR) were collected from the electronic medical records. Prenatal care was assessed using three indexes: the Kessner index, the Modified Adequacy of Prenatal Care Utilization Spanish Index, and an ad-hoc index that considered adherence to the recommendations for pregnant women in Spain.

Results: Compared to non-Roma women, advanced maternal age ($\geq$ 35 years) and primigravida was less common among Roma women. Roma women visited the dentist less often, smoked more, and underwent group B streptococcus screening less frequently. No differences were found in the number of prenatal visits between Roma and non-Roma women. Consequently, there were no differences between the Kessner and the Modified Adequacy of Prenatal Care Utilization Spanish Index. Using the ad-hoc index, the non-Roma women more frequently had adequate prenatal visits. There were no differences in birth characteristics, type of feeding, and neonatal outcomes.

Discussion: Overall, prenatal care was slightly worse in Roma women; however, this did not imply worse neonatal health outcomes. Both study groups had similar birth characteristics and immediate puerperium, including feeding.

Keywords: breastfeeding, prenatal care, pregnancy outcome, reproductive health, Roma

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Adequate prenatal care (PNC) during pregnancy is important for the early detection of risk factors or pathologies that may cause maternal and fetal complications. Certain maternal circumstances may involve a risk to the pregnant woman and her child during pregnancy, such as advanced maternal age (Glick et al., 2021; Kahveci et al., 2018; Lean et al., 2017) or toxic habits such as smoking (Mund et al., 2013). Several international guidelines have been developed (National Institute for Health and Care Excellence [NICE], 2021) and national guidelines in Spain (Ministerio de Sanidad, Servicios Sociales e Igualdad [MSSSI], 2014; SEGO, 2018) that compile the current evidence and recommendations on PNC, childbirth, and puerperium. In these guides, reference is made to the recommended number of prenatal visits, including the performance of analytical tests or ultrasound scans during pregnancy and the need for less instrumentalization of childbirth (MSSSI, 2014).

The Roma population is a marginalized and historically discriminated ethnic minority worldwide. It is estimated that between 10 and 12 million Roma people live in Europe (European Commission [EC], 2021), with one million living in Spain (MSSSI, 2016; Parek & Rose, 2011). The Roma community has its own cultural characteristics and norms, such as a strong sense of identity and group cohesion, the central role of the extended family, and respect for the elderly as an authority. Their beliefs regarding health are oriented more towards collective health as a group than at the individual level, so self-care takes on less importance. Health is considered a value in Roma culture, and women conceive motherhood as a supreme value. In addition, for many decades, they have suffered great social exclusion and have been nomadic or settled in disadvantaged neighborhoods on the outskirts of cities and towns, making it difficult for them to access health services.

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There is evidence of the worse health status of Roma populations when compared to the general population, with a higher number of chronic pathologies, worse health behaviors, greater limitations in the main usual activities (work, studies) or during leisure time, a higher prevalence of visual and hearing impairments, and worse oral health (La Parra Casadoet et al., 2016, 2018; MSSSI, 2016). The reasons for the worse health status include an unfavorable physical and social environment and a lower educational level (Diabelková et al., 2018), which in turn influences the social exclusion and marginalization that is routinely experienced by this minority. This reality highlights the relationship between context and life habits, where exposure to poverty and inequality conditions life habits and worsens health status (Cockerham, 2013).

Within the Roma population, women have a worse health status than men and participate less in preventive activities (Carrasco-Garrido et al., 2011; MSSSI 2016; Usera-Clavero et al., 2020), making them an even more vulnerable group. The reproductive health of Roma women has been poorly studied, even though they have a higher fertility rate and a higher frequency of early marriages and teenage pregnancies (Diabelková et al., 2018; Sedlecky & Rašević, 2015). Nonetheless, previous studies indicate that the Roma population has worse pregnancy follow-up and birth outcomes. For example, some researchers have found that Roma women are at a higher risk of poorly controlled pregnancies, with a scarce number of prenatal visits (Diabelková et al., 2018; Puig Sola et al., 2008) and often receiving the first prenatal visit beyond the first trimester (Diabelková et al., 2018). Other studies have documented an increased risk of preterm birth and low birth weight in children of Roma mothers when compared to children of non-Roma mothers (Balázs et al., 2013, 2014; Bobak et al., 2005; Cook et al., 2013; Diabelková et al., 2018; Janevic et al., 2017; Rambousková et al., 2009). Additionally, according to other studies, breastfeeding rates are very low in this ethnic group (Pinkney, 2012).

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However, most of these studies have been carried out in Central/Eastern European countries, such as Hungary, the Czech Republic, and Serbia. In contrast, hardly any studies have been conducted in other countries where the presence of this ethnicity is equally significant. It would be interesting to know whether the differences found in the reproductive health of Roma and non-Roma women in Central/Eastern Europe are due to their health care system (Bismark model). Therefore, it would be useful to carry out additional studies in countries with different health care models. In Spain, both factors converge: The percentage of the Roma population is similar to Central/Eastern Europe, although the health care system is different (Beveridge model). This study aimed to explore differences in PNC and maternal–infant outcomes between Roma and non-Roma women in Spain.

Methods

Participants

A retrospective longitudinal study of a sample of pregnant women from seven primary health care centers in the three districts where around 50% of the Roma population of Asturias (Northern Spain) resides. Health centers were selected intentionally because of their greater probability of attending Roma women during pregnancy and puerperium.

Procedure

Midwives recruited women ($n = 7$) during prenatal or postpartum visits. The inclusion criteria were being over 18 years of age, having all-pregnancy visits at the selected primary care centers, and giving birth between March 2017 and April 2019. Because the Roma population is an underrepresented group, the midwives offered all Roma women who met the inclusion criteria

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to participate in the study. The midwives then offered participation to non-Roma women who attended the consultation on the same day as the participating Roma woman. Women from other ethnic underrepresented groups and immigrant women were excluded. The midwives had to inform prospective participants and ask for their consent to access their electronic health record (EHR) data after 2 months postpartum. These midwives were previously trained to recruit participants and present the study to standardize the procedure. Subsequently, women were classified according to whether they were Roma or non-Roma.

This study was approved by the Research Ethics Committee of the Principality of Asturias (No. 128/17). All women received sufficient information and provided written informed consent. Access to the EHR was performed by the research team, assigning a unique code to each woman in an anonymized database for data analysis.

Variables

Sociodemographic variables were collected for each woman (age and employment status: employed or self-employed, unemployed, unknown employment status or not working, variables related to pregnancy follow-up (weeks of gestation at the first visit, gestational age at birth, prenatal visits) and date, the performance of screening tests (Hepatitis B, HIV, gestational diabetes and Group B Streptococcus (between 35 and 37 weeks) screening and ultrasound scan, use of supplements (folic acid supplementation and adequate iodine intake), confirmed dentist visits at the health center and self-reported smoking habits during the pregnancy period, pathologies during pregnancy, risk pregnancy, referral to hospital during pregnancy, care during birth (type of birth and procedures performed), feeding (2 hr after birth and at hospital

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discharge), and postnatal visit with the midwife during the puerperium. The following neonatal outcomes were collected: newborn weight and appearance, pulse, grimace, activity, and respiration (APGAR) at 1 min and 5 min of life. The weight percentile was calculated for each child with the data on weight and gestational age (Mikolajczyk et al., 2011).

Three indexes were used to evaluate PNC. First, the Kessner index was used, a composite index based on the combination of data on the week of the first prenatal visit, the gestational age at birth, and the total number of prenatal visits (Bloch et al., 2009). According to this index, the number of prenatal visits is considered adequate when the first visit takes place in the first trimester, and the recommended prenatal visits are performed, adjusting for gestational age. That is, nine or more monthly visits are considered adequate for pregnancies ending after 36 weeks. PNC is considered inadequate if it starts late (after 28 weeks) or if fewer visits are made than recommended (four or fewer visits in pregnancies ending after 33 weeks). The remaining categories are considered intermediate monitoring.

Secondly, the Modified Adequacy of Prenatal Care Utilization Spanish Index (APNCU2M-SP) proposed by Castello et al. (2012) for the Spanish context based on the adaptation of VanderWheele et al. (2009; APNCU-1M) of the Adequacy of Prenatal Care Utilization was applied. This index classifies PNC into four categories: adequate plus, adequate, intermediate, and inadequate, using two indicators: initiation of PNC and the number of visits according to gestational age at birth.

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Finally, we developed our own index based on institutional recommendations for pregnancy and puerperium care in Spain (MSSSI, 2014; SEGO, 2018). Given that access to the health system is universal and free in Spain and it offers a standardized service, all women had the same possibility of complying with these recommendations. In this study, 11 recommendations were considered: seven have a strong level of evidence (first visit before 12 weeks of gestation, at least nine visits in the first gestation, or seven visits in successive pregnancies; hepatitis B and HIV screening in the first trimester, folic acid intake during gestation and at weeks 11–14, weeks 18–20 ultrasound), and four with a weak level of evidence (adequate iodine intake during pregnancy, screening for gestational diabetes, screening for group B streptococcus through vagino-rectal exudate between 35–37 weeks and ultrasound at weeks 33–34). According to our index, PNC was adequate if it met all the proposed indicators, intermediate if it met all the indicators with solid evidence but failed to meet any weak indicator, and inadequate if it failed to meet any indicator with a strong level of evidence.

Data Analysis

IBM SPSS Statistics for Windows (Version 27.0), was used for data analysis. Categorical variables were expressed as frequencies and percentages. For quantitative variables, means and standard deviation (SD) or medians and interquartile range (IQR) were used according to the normality of the variables. Pearson's chi-square tests were used for comparing categorical variables and the unpaired t-test or Mann-Whitney U were used for comparing quantitative variables; p values < .05 were considered significant.

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<div align="center">**Restults**</div>

Participant Characteristics

A total of 137 women (106 non-Roma and 31 Roma) were included in the study, of which 15 women were eliminated (12 non-Roma and three Roma), as three had a miscarriage and 12 presented incomplete medical records related to the main study variables. Therefore, the final sample comprised 122 women, of whom 94 (77.0 %) were non-Roma and 28 were Roma (23.0 %).

The median age was 34.0 years (IQR = 31–37) for non-Roma women and 25.0 (IQR = 23-26.75) for Roma women ($p < 0.001$). Significant differences were detected for work status, as 62.9% of the non-Roma women were working at the time versus 11.1% of the Roma women ($p < .001$).

Prenatal Care

Compared to non-Roma women, among Roma women, advanced maternal age (≥ 35 years; 10.7% vs. 46.8%; $p < .001$) and being primigravida (25.0% vs. 55.3%; $p = .005$) was less common. The main characteristics of PNC are presented in Table 1. No differences were detected in the number of visits performed during gestation, nor in the number of analytical tests or ultrasound scans. Among Roma women, it was more common not to visit the dentist ($p < .001$), to smoke during pregnancy (.013) and to undergo group B streptococcus screening less frequently ($< .001$).

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When assessing PNC according to the proposed indexes (Table 2), differences were only detected in our own index (p = .017), observing that adequate follow-up was more frequent among non-Roma women (41.5% vs. 28.6%) as opposed to Roma women, where intermediate PNC was more common (42.9% vs. 17.0%). Because women's gestational experiences may influence adherence to antenatal care recommendations, these analyses were repeated excluding primigravid women (Supplementary Table 1, http://links.lww.com/NRES/A446) and the main results did not change.

As seen in Table 3, of health problems detected during pregnancy, urinary tract infections (p = .010) and hospital referral (p = .003) were more frequent in Roma women.

Birth and Postpartum Care and Neonatal Outcomes

The type of birth, the use of epidural analgesia, and perineal tears were similar in both groups. Roma women were similar in that they initiated breastfeeding in the first hours after birth, whereas at the time of discharge, 44.4% continued exclusive breastfeeding, compared to 61.7% in non-Roma women (p = .070). No differences were detected in terms of preterm birth, weight, weight percentile and/or newborn well-being (Table 4)

Discussion

The adequacy of PNC, based on the date of the first prenatal visit and the total number of visits, was similar among non-Roma and Roma women. However, compliance with recommendations regarding no smoking, oral health care, and screening tests for group B streptococcus was lower in Roma women. These poorer outcomes for some indicators did not translate into poorer neonatal outcomes or greater maternal health problems in the puerperium.

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Regarding the characteristics of both groups, in the non-Roma women of our study, we observed the same demographic pattern of recent years—with a progressive delay in motherhood to a maternal age of around 34 years—which, for many women is also their first pregnancy. In contrast, Roma women continue to be younger mothers and have more children (Sedlecky & Rašević, 2015).

During pregnancy, Roma women coexist with two models, the self-care model where their referents during the process are the women in their family: mainly their mother, grandmothers, sisters, or mother-in-law (García Martínez et al., 2018), and the biomedical model, as they also go to the gynecologist (Logar et al., 2015, Martorell Poveda & Rodríguez Pola, 2015). In fact, in our setting, attending prenatal visits is a common practice among Roma women, as documented in other studies conducted in Spain (García Martínez et al., 2018; Martorell Poveda & Rodríguez Pola, 2015), probably in relation to the importance that the Roma community assigns to caring for the pregnant woman and her future child (Sedlecky & Rašević, 2015). Furthermore, the Spanish health system is universal and free of charge; therefore, there should be no differential barriers to health care access between Roma women and the general population. In addition, the lower incorporation of Roma women into the labor market may be a factor that facilitates accessibility to scheduled prenatal and postnatal visits.

Our results probably support the fact that in Spain, Roma women face greater inclusion and a more favorable socioeconomic situation than in other countries, where this vulnerable group lives in settlements on the outskirts of cities, with significant deficiencies in infrastructure, hygiene and housing, suffering greater social exclusion (Diabelková et al., 2018).

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Using the Kessner and Modified Adequacy of Prenatal Care Utilization Spanish Indexes, we found no differences in PNC between Roma and non-Roma women. These two indexes are based mainly on the number of visits and gestational age at the first visit. However, according to our index, which, in addition to including these indicators, also considers whether the woman is primigravid/not primigravid and other variables on specific procedures (screening tests), supplementation, oral health check-up, tobacco use, etc., several differences were detected, observing that adequate pregnancy visits were more frequent among non-Roma women. However, this poorer compliance with some recommendations did not imply worse neonatal outcomes or more maternal health problems in the immediate puerperium.

In the analyses performed in women with multiple gestations, an improvement in prenatal visits in successive pregnancies was observed in non-Roma women, possibly due to previous experience and better knowledge of the tests to be performed, whereas prenatal visits in Roma pregnant women was very similar.

Our results on smoking among Roma women during pregnancy concur with Jankovic et al. (2017) and are in line with other studies where a higher proportion of Roma women smokers has been documented compared to non-Roma pregnant women (Balázs et al., 2013; Diabelková et al., 2018; Rambousková et al., 2009). When assessing this result in our context, by comparing the Spanish National Health Survey (2006/2012) and the National Health Survey of the Roma population (2006/2014), the prevalence of tobacco use has decreased in men among the general population; however, no significant changes were recorded in the Roma population in either men or women (Usera-Clavero et al., 2019). Therefore, smoking seems to be a frequent habit among

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the Roma population and also among Roma women—even during pregnancy—despite the fact that some Roma women identify smoking as a behavior that is harmful to their health and limit its consumption during pregnancy (Martorell Poveda & Rodríguez Pola, 2015). It is important to promote actions to reduce this habit since smoking during pregnancy not only affects women's health, but also has important repercussions on children from the perinatal period to adulthood (Avçar et al., 2021). It is important to bear in mind that these interventions should be tailored to the needs of Roma women as well as their context and their possibilities of participation. In addition, it is essential to consider the meaning of smoking for the Roma population, which has traditionally been perceived as an element of their cultural and family identities, so they are not always permeable to smoking cessation health advice (Petek et al., 2006); this further justifies the importance of designing strategies tailored to their cultural norms and beliefs.

The lower frequency of visits to the dentist was already observed in the general Roma population survey (MSSSI, 2016) where this population presented a worse oral health situation than the lower social classes of the general population, attending these services to a lesser extent and where, according to self-reports, Roma women have more cavities than Roma men. Addressing this situation is also a priority. Currently, the Spanish Ministry of Health includes an oral health care program from primary care where every pregnant woman is offered a preventive examination of the oral cavity, health education, and application of topical fluoride free of charge. However, it is necessary to know the factors related to the low participation in these actions by promoting qualitative studies to enable us to explore the relationship between the Roma community and oral health.

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In our study, no differences in preterm birth or low birth weight were observed between Roma and non-Roma women as in a previous study in Spain (Puig Sola et al., 2008) and other international studies (Balázs et al., 2013) that concluded that ethnicity (Roma/non-Roma) was not related to preterm birth or low birth weight after adjusting for socioeconomic or lifestyle variables, where the main factors for these two outcomes were low maternal weight, advanced maternal age, and smoking. This highlights the importance of addressing lifestyles during pregnancy without focusing exclusively on ethnicity as an explanatory variable for some neonatal outcomes. The approach to lifestyles, both by primary health care professionals and by health institutions from a comprehensive perspective, should consider the context of the Roma community where numerous factors often converge, indicative of a more unfavorable overall situation (diet, toxic habits, less access to education, and employment; Cockerham, 2013).

Regarding feeding, although no significant differences in infant feeding were detected, as in other studies (Stamenkovic et al., 2020), we found that fewer Roma women initiated breastfeeding in the first hours; however, less than half continued with this type of feeding at discharge. Nonetheless, these results are superior to those reported by Stamenkovic et al. (2020) in Serbia where 13% of Roma women exclusively breastfed and the study by Pinkey (2012) in the United Kingdom where about 3% of gypsies and women travelers chose to breastfeed, noting that many women had a neutral attitude towards infant feeding. Conversely, Condon and Salmon (2015) in a qualitative study also conducted in England, documented a more positive predisposition towards breastfeeding in Roma mothers, where they are also helped by their family or have seen other women breastfeeding. In contrast, English gypsies and Irish travelers mostly opted for bottle-feeding although some of these women were keen to try breastfeeding as

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they perceived its benefits—although this desire could conflict with the customs in these cultural groups (Condon & Salmon, 2015). Concretely, breastfeeding is not part of the tradition, it conflicts with the behavior that is expected of women and should be carried out in intimacy and in a private setting (Condon & Salmon, 2015).

Further studies on breastfeeding among Roma women in our setting are necessary in order to learn in depth about their beliefs and attitudes, as well as the difficulties they face. Moreover, it is important to take advantage of prenatal visits to address this issue since many Roma women do not attend the group sessions of maternal education/preparation for childbirth where infant feeding is usually addressed (García Martínez et al., 2018; Martorell Poveda & Rodríguez Pola, 2015; Stamenkovic et al., 2020), and furthermore Roma women may not perceive the need to seek help with professionals for these issues as they routinely receive support within their community (Condon & Salmon, 2015; García Martínez et al., 2018).

Future research is needed to gain a deeper understand of how to provide an equitable health care for underrepresented ethnic groups. Future studies should also use qualitative methodology or with mixed designs to gather the experience of Roma women and health professionals regarding pregnancy, childbirth, puerperium, and breastfeeding to specifically know their experiences and be able to compare these with other studies that have documented there is still a discrimination of Roma women in maternity wards in Europe (Watson & Downe, 2017). It would also be interesting to explore how the expectations of Roma women towards motherhood have changed in recent decades, in line with the evolution of society in high-income countries. Finally, it would be very important to know what kind of interventions would be

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welcomed by Roma women to improve some health indicators, such as oral health care or smoking, taking into account their cultural beliefs and socioeconomic status. Improving these indicators would have a positive affect not only on the general health of women and their children, but also on the Roma community as a whole, since women play a central role in family health care.

Limitations

Our main limitation is the small sample size, especially of Roma women. The participation of Roma population in research studies is limited; they could be considered a "hard-to-reach" population subgroup, with greater difficulties participating in research or public health programs possibly due to socioeconomic vulnerability or fear of contact or confrontation with the authorities (Shaghaghi et al., 2011). We made an effort to recruit this population by incorporating seven primary care centers and their midwives, despite the complexity of including three different districts (permit management and organization of information/coordination sessions). However, the aforementioned difficulties may have influenced the representativeness of the sample, and we cannot rule out that women with better indicators and better follow-up have been included; therefore, the differences detected between the two groups may be underestimated.

Another limitation was to only include women over 18 years of age, a decision motivated by the fact that access to EHR in women under 18 years of age in Spain also requires parental consent, which is especially complex in situations of special vulnerability such as early pregnancy. Since this is a study based on the analysis of the information contained in the EHR,

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we cannot rule out information bias due to omissions in the completion of some variables or the fact that some women may have followed up their pregnancies combining care in the public/private system and whose care is not recorded in the EHR. It would also have been desirable to collect other indicators on the socioeconomic situation of the women, their educational levels and/or lifestyles; however, this information is not routinely recorded in the EHR.

Conclusion

In general, PNC was slightly more limited in Roma women; although, this did not imply worse neonatal health outcomes. The participation of Roma women in health visits throughout the reproductive process from pregnancy to the first postpartum weeks was high; however the results of certain indicators such as smoking and oral health were worse. If PNC programs aim to provide adequate follow-up during pregnancy to achieve optimal maternal and infant outcomes, it would be advisable to determine if PNC should include specific tests and not just the date of the first visit or the number of visits. This would be especially true for women in vulnerable groups where many socioeconomic and cultural factors influence the pregnancy outcomes and maternal and infant well-being.

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Table 1

Prenatal care: visits, screening tests, supplementation, and behaviors of pregnant women

	Non-Roma (*n*=94)	Roma (*n*=28)	*p*-value
Weeks of gestation at first visit, median (IQR)	7(6-8)	6(6-8)	.688[a]
Gestational age at birth, in weeks median (IQR)	39.5(38.9-40.2)	39.2(38.3-40.0)	.212[a]
Prenatal visits, median (IQR)	9.5(7-14)	10(7.3-13.5)	.869[a]
Number of expected visits corrected for gestational age at birth, median (IQR)	9(8-10)	8.5(7.3-9)	.306[a]
Hepatitis B and HIV screening, n(%)	90(95.7)	28(100.0)	.573[b]
Folic acid supplementation during pregnancy, *n*(%)	93(98.9)	27(96.4)	.408[b]
Gestational diabetes screening (24-28 weeks), *n*(%)	93(98.9)	27(96.4)	.408[b]
Ultrasound scan (11-14 weeks), *n*(%)	90(95.7)	28(100.0)	.000[b]
Ultrasound scan (18-20 weeks), *n*(%)	93(98.9)	28(100.0)	.584[b]
Ultrasound scan (33-34 weeks), *n*(%)	94(100.0)	28(100.0)	
Adequate iodine intake during pregnancy, *n*(%)	80(85.1)	25(92.6)	.519[b]
No dentist visits during pregnancy, *n*(%)	19(20.9)	15(53.6)	<.001[b]
Smoking during pregnancy, *n*(%)	16(17.0)	11(39.3)	.013[b]
Group B Streptococcus screening, *n*(%)	81(92.0)	12(50.0)	<.001[b]

Note. IQR = interquartile range; HIV = human immunodeficiency virus

[a] Mann-Whitney U test

[b] Pearson's chi-square test

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Table 2

Indices of prenatal care

	Non-Roma (*n*=94)	Roma (*n*=28)	*p*-value[a]
Kessner Index, *n* (%)			
Adequate	52(55.3)	17(60.7)	
Intermediate	40(42.6)	8(28.6)	.079
Inadequate	2(2.1)	3(10.7)	
Modified Adequacy of Prenatal Care Utilization Spanish Index (APNCU2M-SP), *n* (%)	41(43.6)	13(46.4)	
Adequate plus	25(26.6)	9(32.1)	
Adequate	24(25.5)	3(10.7)	.263
Intermediate	4(4.3)	3(10.7)	
Inadequate			
Own Index, *n* (%)			
Adequate	39(41.5)	8(28.6)	
Intermediate	16(17.0)	12(42.9)	.017
Inadequate	39(41.5)	8(28.6)	

Note. [a] Pearson's chi-square test

Table 3

Health problems detected during pregnancy

	Non-Roma (*n*=94)	Roma (*n*=28)	*p*-value[a]
Positive diagnosis of gestational diabetes, n (%)	8(8,5)	2(7,4)	1.000
Anemia (hemoglobin <11 gr), *n* (%)	27(28.7)	12(42.9)	.159
Urinary tract infection, *n* (%)	11(11.7)	9(32.1)	.010
Risk pregnancy, *n* (%)	35(37.2)	8(28.6)	.400
Hospital referral during pregnancy, *n* (%)	20(21.3)	14(50.0)	.003

Note. [a] Pearson's chi-square test

Table 4

Maternal-infant outcomes during birth and puerperium

	Non-Roma (*n*=94)	Roma (*n*=28)	*p*-value
Maternal outcomes			
Type of birth, *n* (%)			
Eutocic	60(63.8)	24(85.7)	.082[a]
Instrumental	22(23.4)	2(7.1)	
Cesarean section	12(12.8)	2(7.1)	
Epidural analgesia, *n* (%)	81(89.0)	22(84.6)	.509[a]
Episiotomy, *n* (%)	27(29.3)	4(14.8)	.211[a]
Perineal tear, *n* (%)	51(56.0)	14(51.9)	.701[a]
Begins breastfeeding 2 hours postpartum, *n* (%)	64(76.2)	18(69.2)	.477[a]
Type of feeding at discharge, *n* (%)			
Exclusive breastfeeding	58(61.7)	12(44.4)	.070[a]
Mixed feeding	9(9.6)	7(25.9)	
Bottle feeding	27(28.7)	8(29.6)	
First postpartum midwife checkup, *n* (%)	91(96.8)	26(92.9)	.323[a]
Infant outcomes			
Preterm birth (< 37 fetal age weeks), *n* (%)	8(8.5)	2(7.1)	1.000[a]
Birth weight, mean (SD)	3155.2 (484.8)	3098.6(524.3)	.601[b]
Birth weight, *n* (%)			
Low weight (<2500 grams)	5(5.3)	4(14.8)	.188[a]
Normal weight (2500-4000 grams)	85(90.4)	21(77.8)	
Macrosomic (> 4000 grams)	4(4.3)	2(7.4)	
Weight percentile, median (IQR)	43.38(27.7-77.7)	51.31(9.9-78.0)	.746[c]
APGAR score 1 minute, median (IQR)	9 (9-9)	9 (9-9)	.978[c]
APGAR score 5 minutes, median (IQR)	10 (10-10)	10 (10-10)	.549[c]

Note. SD = Standard Deviation APGAR = Appearance, Pulse, Grimace, Activity, and Respiration; IQR = interquartile range

[a] Pearson's chi-square test

[b] Unpaired t-test

[c] Mann-Whitney U test

Supplementary Table 1. Prenatal care in multigestational women.

	Non-Roma (n=42)	Roma (n=21)	p-value
Weeks of gestation at first visit, median (IQR)	6.5(5.8-8.0)	6(6-8)	0.710[a]
Gestational age at birth, in weeks, median (IQR)	39.4(38.4-40.1)	39.4(38.8-40.1)	0.704[a]
Prenatal visits, median (IQR)	10(6.8-16)	10(7.5-14)	0.510[a]
Number of expected visits corrected for gestational age at birth, median (IQR)	8.5(7.8-10.0)	9(7.5-9)	0.976[a]
Hepatitis B and HIV screening, n (%)	40(95.2)	21(100)	0.548[b]
Folic acid supplementation during pregnancy, n (%)	42(100)	20(95.2)	0.333[b]
Gestational diabetes screening (24-28 weeks), n (%)	42(100)	20(95.2)	0.333[b]
Ultrasound scan (11-14 weeks), n (%)	40(95.2)	21(100)	0.548[b]
Ultrasound scan (18-20 weeks), n (%)	42(100)	21(100)	
Ultrasound scan (33-34 weeks), n (%)	42(100)	21(100)	
Adequate iodine intake during pregnancy, n (%)	35(83.3)	19(95.0)	0.258[b]
No dentist visits during pregnancy, n (%)	9(21.4)	12(57.1)	0.005[b]
Smoking during pregnancy, n (%)	7(16.7)	10(47.6)	0.009[b]
Group B Streptococcus screening, n (%)	35(87.5)	8(44.4)	0.001[b]
Kessner Index, n (%)			
Adequate	27(64.3)	13(61.9)	
Intermediate	14(33.3)	6(28.6)	0.447[b]
Inadequate	1(2.4)	2(9.5)	
Modified Adequacy of Prenatal Care Utilization Spanish Index (APNCU2M-SP), n (%)			
Adequate plus	22(52.4)	10(47.6)	
Adequate	10(23.8)	6(28.6)	0.697[b]
Intermediate	7(16.7)	2(9.5)	
Inadequate	3(7.1)	3(14.3)	
Own Index, n (%)			
Adequate	23(54.8)	6(30.0)	
Intermediate	8(19.0)	10(47.6)	0.047[b]
Inadequate	11(26.2)	5(23.8)	

IQR: interquartile range HIV: human immunodeficiency virus

[a] Mann-Whitney U test [b] Pearson's chi-square test