Pregnancy in adolescence in Brazil: associated factors with maternal age

Thamara de Souza Campos Assis 1
https://orcid.org/0000-0001-6207-5962

Katrini Guidolini Martinelli 2
https://orcid.org/0000-0003-0894-3241

Silvana Granado Nogueira da Gama 3
https://orcid.org/0000-0002-9200-0387

Edson Theodoro dos Santos Neto 4
https://orcid.org/0000-0002-7351-7719

1,2,4 Programa de Pós-graduação em Saúde Coletiva. Departamento de Medicina Social. Universidade Federal do Espírito Santo. Av. Marechal Campos, 1468. Maruípe. Vitória, ES, Brasil. CEP: 29.040-090. E-mail: thamarasc@yahoo.com.br
3 Escola Nacional de Saúde Pública Sérgio Arouca. Fundação Oswaldo Cruz. Rio de Janeiro, RJ, Brasil.

Abstract

Objectives: describing maternal characteristics, risk behavior, obstetric data, prenatal care and childbirth in adolescent mothers in Brazil (age groups: 12-16 years and 17-19 years).

Methods: hospital-based cross-sectional study substantiated by Nascer no Brasil”, (Born in Brazil) data. The study encompassed puerperal adolescent mothers from all regions in the country, and their newborns. Chi-square test was used to compare adolescents in the 12-16 years old age group and those in the 17-19 years old age group.

Results: pregnant women in the 12-16 years old age group mostly lived in the Northeast of Brazil (p=0.014); most of them did not have a partner (p<0.001), unplanned pregnancy (p<0.001), they had inadequate schooling for their age (p=0.033), had less than six prenatal consultations (p=0.021), were subjected to episiotomy (p=0.042) and accounted for the largest number of premature babies (p=0.014).

Conclusions: puerperal women in the 12-16 years old age group presented vulnerability in their socioeconomic conditions, inadequate assistance at the prenatal and childbirth care, as well as their babies showed neonatal complications that pointed towards these adolescent mothers’ need of multidisciplinary care.

Key words Pregnancy in adolescence, Prenatal care, Childbirth, Risk behaviors

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Introduction

Pregnancy at adolescence remains a relevant topic in the Brazilian reproductive health scope given its high prevalence, and because it is one of the main causes of morbidity in women in this age group. According to the World Health Organization (WHO), Brazil accounts for one of the highest rates in pregnancy at adolescence in Latin America, although, it has presented a decrease in the last few years; however, the country recorded 68.4 live born babies for every one thousand girls in the 15-19 years old age group, in 2016.3

Almost 20% of all births in Brazil, in 2010, were of adolescent mothers, whereas this rate was 14.72%, in 2019. The most significant reduction in this rate was observed in the 15-19 years old age group. The youngest adolescents (10-14 years) presented rates lower than 1%, and a tendency of a slight reduction.4

Pregnant adolescents use to have more inappropriate access to prenatal assistance; they tend to start late prenatal care and to have a smaller number of consultations than adult pregnant women.5,6 Brazil, similar to other countries, also registers high probability of premature childbirth, low birth weight, and maternal and neonatal mortality in adolescent mothers.7,8 The chance to have other complications during pregnancy, such as urinary infections, abortion, pre-eclampsia, pregnancy-associated hypertensive disease and premature rupture of the membranes are also high.9-11

Studies have corroborated that womenin the 16-years old age group, or older, have obstetric behavior similar to adult women; therefore, they have less unfavorable neonatal and maternal outcomes than the young ones.5,12 Thus, the aim of this present study is to describe maternal characteristics, risk behaviors, obstetric data, prenatal and childbirth data in puerperal adolescents in Brazil, in the 12-16 years old and 17-19 years old age groups.

Methods

A cross-sectional study adopted to analyze data collected through the hospital-based national survey known as “Nascen no Brasil”, (Born in Brazil), from February 2011 to October 2012. The sample comprises puerperal mothers and their newborns - selection was divided into three stages. The first stage included hospitals with more than 500 births/year, which were stratified based on the macro-regions in the country (North, South, Northeast, Southeast and Midwest), the location (state capitals or countryside) and type of service (public, private or mixed). The number of days necessary to interview 90 puerperal women in each one of the 266 previously selected hospitals was defined at the second stage (at least 7 days), based on the reverse sampling method and the third stage puerperal women and their babies were selected.13

All puerperal women in the 20 years old or younger age group were taken into consideration for this analysis. Information was collected from interviews conducted with the participants during hospitalization, through electronic questionnaire and through data on their prenatal cards – which were photographed and transcribed into the standard form -, as well as through the information in the maternal and neonatal medical records. Medical records were collected after women were discharged, or on the 42nd day of hospitalization / and/or after newborns were discharged, or on the 28th day of the newborns’ hospitalization.14

Maternal schooling (adequate/inadequate for the adolescents’ age), economic classification based on the Associação Brasileira de Institutos de Pesquisa de Mercado (Brazilian Association of Market Research Institutes) (economic classes A/B – high, C – middle, D/E – low), self-refferred race/skin color (white, black, mixed Asian descendant and indigenous), pre-gestational Body Mass Index (BMI) - Kg/m² (<18.5 –low weight; 18.5-24.9 – normal; 25.0-29.9 - overweight; 30.0 or more - obese), location of residence (North, Northeast, Southeast, South and Midwest), marital status (without and with a partner) and paying job (yes and no) were used as sociodemographic variables. Smoking during pregnancy (yes and no) and suspicion of inadequate alcohol intake (yes, when women scored two points, or more, within the total of seven points, based on the instrument known as Tolerance, Worried, Eye-opener, Amnesia, K-Cut Down (TWEAK), and no, when they did not have alcoholic drinks during pregnancy or scored only one point) were taken into account to assess maternal risk behavior.15

Variables related to prenatal care and childbirth were prenatal location (only public /some private consultations / no prenatal care), the same professional assisted throughout the prenatal care and at childbirth (yes/no), type of childbirth financing (public/private), childbirth pilgrimage – was not assisted at the first maternity hospital for childbirth (yes/no) and type of childbirth (vaginal /cesarean section). Episiotomy, perineal laceration and Kristeller’s maneuver – all in the yes/no category – were also variables assessed for the group of women.
who had vaginal childbirth.

Prenatal care was assessed based on the recommendations by the Health Ministry. The trimester pregnancy cycles were considered as reference for the beginning of care provided for the pregnant women (1st trimester/2nd trimester/3rd trimester/no prenatal care), total number of consultations registered on the pregnant women’s medical card (less than 6 consultations/6 consultations or more/no prenatal care), prenatal adjustment based on the number of expected consultations for the gestational age (inadequate/partially adequate/adequate/more than adequate) and performed at least one of the following procedures by the Health Ministry.

Bivariate inferential analysis was adopted to assess the ratio of differences between groups and present or absent. All analyses were carried out with a significance level (p ≤ 0.05) for births of the population sampled back in 2011, namely by deriving weighted percentages.

The research was approved by the Research Ethics Committee of the Escola Nacional de Saúde Pública da Fundação Oswaldo Cruz, under the number 92/2010. The digital consent form was signed by each puerperal woman after they read it before the interview. The secondary analysis of gathering data was approved by the Research Ethics Committee of the Centro de Ciências da Saúde da Universidade Federal do Espírito Santo, under the number 3.565.689/2019.

Results

In total, 4,571 puerperal adolescents at a minimum age of 12 years old participated in this study, 1,375 adolescents in the 12-16 years old age group and 3,196 in the 17-19 years old age group.

In regards to maternal characteristics and risk behavior, most adolescents belonged to the C economic class (means), they had inadequate schooling for their age and lived with their partners. The comparison between the 12-16 age group and the 17-19 was possible to observe that younger adolescents presented higher inadequate schooling rates (p=0.033), low BMI weight (p=0.014), lived in the Northeast region (p=0.014), did not have a partner and did not have a paying job (p=0.014) (Table 1).

Most adolescents only received prenatal care at the public health centers; they were not examined by the same professional during the prenatal care and at childbirth. Prenatal care in the beginning occurred in the same trimester on the 1st and 2nd trimesters; adolescents were assisted 6 or more consultations. HIV, syphilis, Abnormal Sediment Elements (ASE) and fasting blood glucose examination rates ranged from 55.4% to 63.2%, based on the pregnant women’s medical cards. Only 5.4% of the registered births occurred in private maternity hospitals and 62.9% were vaginal childbirth. Yet, it was possible to observe that puerperal adolescents 12-16 years old presented the highest rates of ‘less than 6 prenatal consultations’ (p=0.021), as well as prenatal care inadequacy (p=0.006), childbirth pilgrimage (p=0.041) and episiotomy (p=0.042). On the other hand, women 17-19 years old showed higher perineal laceration rates (p=0.015) (Table 2).

Overall, when it comes to obstetric history, and maternal and neonatal complications, adolescents were primiparous and did not plan to be pregnant; urinary infection was the most common complication. The comparison of the two groups allowed to...
observe that the youngest adolescents were accounted for frequently being primiparity \((p<0.001)\), non-intentional pregnancy \((p<0.001)\) and spontaneous prematurity \((p=0.014)\). The oldest adolescents, registered having the highest frequency in previous abortion \((p<0.001)\), history of low birth weight and prematurity \((p<0.001)\), previous Cesarean sections \((p<0.001)\) (Table 3).

### Table 1

**Analysis of maternal characteristics and risk behavior in puerperal adolescents, "Nascer no Brasil" (Born in Brazil). Brazil, 2011-12.**

| Variables                                      | Total \((N=4,571)\) | 12-16 years old \((N=1,375)\) | 17-19 years old \((N=3,196)\) | \(p\) |
|------------------------------------------------|----------------------|---------------------------------|---------------------------------|-------|
| Maternal characteristics                       |                      |                                 |                                 |       |
| Schooling \((n=4,362)\)                        | 0.033                |                                 |                                 |       |
| Adequate for the age                           | 1,569 36.0           | 437 33.9                        | 1,132 36.8                      |       |
| Inadequate for the age                         | 2,793 64.0           | 853 66.1                        | 1,940 63.2                      |       |
| Economic classification \((n=4,535)\)          | 0.097                |                                 |                                 |       |
| Class D+E                                      | 1,576 34.8           | 529 38.9                        | 1,047 33.0                      |       |
| Class C                                        | 2,465 54.3           | 709 52.1                        | 1,757 55.3                      |       |
| Class A+B                                      | 494 10.9             | 123 9.0                         | 372 11.7                        |       |
| Skin color \((n=4,570)\)                      | 0.434                |                                 |                                 |       |
| White                                          | 1,242 27.2           | 349 25.4                        | 893 27.9                        |       |
| Black                                          | 405 8.9              | 121 8.8                         | 283 8.9                         |       |
| Mixed                                          | 2,847 62.3           | 874 63.6                        | 1,973 61.8                      |       |
| Asian Descendant                               | 45 1.0               | 15 1.1                          | 30 0.9                          |       |
| Indigenous                                     | 31 0.7               | 15 1.1                          | 16 0.5                          |       |
| Pre-gestational BMI \((Kg/m²)\) \((n=4,537)\) | 0.014                |                                 |                                 |       |
| < 18.5                                         | 395 8.7              | 143 10.5                        | 252 7.9                         |       |
| 18.5 – 24.9                                    | 2,768 61.0           | 824 60.4                        | 1,944 61.3                      |       |
| 25.0 – 29.9                                    | 962 21.2             | 303 22.2                        | 659 20.8                        |       |
| ≥ 30                                           | 412 9.1              | 95 7.0                          | 318 10.0                        |       |
| Region \((n=4,571)\)                          | 0.014                |                                 |                                 |       |
| North                                          | 614 13.4             | 175 12.7                        | 438 13.7                        |       |
| Northeast                                      | 1,467 32.1           | 511 37.2                        | 957 29.9                        |       |
| Southeast                                      | 1,686 36.9           | 469 34.1                        | 1,217 38.1                      |       |
| South                                          | 493 10.8             | 133 9.7                         | 360 11.3                        |       |
| Midwest                                        | 311 6.8              | 87 6.3                          | 224 7.0                         |       |
| Marital status \((n=4,568)\)                  | <0.001               |                                 |                                 |       |
| Without a partner                              | 1,435 31.4           | 529 38.6                        | 905 28.3                        |       |
| With a partner                                 | 3,133 68.6           | 843 61.4                        | 2,290 71.7                      |       |
| Paying job \((n=4,568)\)                      | <0.001               |                                 |                                 |       |
| Yes                                            | 538 11.8             | 56 4.1                          | 482 15.1                        |       |
| No                                             | 4,030 88.2           | 1317 95.9                       | 2,713 84.9                      |       |
| Risk behaviors                                 |                      |                                 |                                 |       |
| Smoking during pregnancy \((n=4,568)\)         | 0.007                |                                 |                                 |       |
| Yes                                            | 394 8.6              | 90 6.6                          | 305 9.5                         |       |
| No                                             | 4,174 91.4           | 1,284 93.4                      | 2,891 90.5                      |       |
| Inappropriate alcohol intake during pregnancy \((n=4,451)\) | 0.322               |                                 |                                 |       |
| Yes                                            | 505 11.3             | 132 9.9                         | 373 12.0                        |       |
| No                                             | 3,946 88.7           | 1,204 90.1                      | 2,742 88.0                      |       |
### Table 2

Analysis of maternal characteristics and risk behavior in puerperal adolescents, "Nascer no Brasil" (Born in Brazil), Brazil, 2011-12.

| Variables                                                                 | Total (N=4,571) | 12-16 years old (N=1,375) | 17-19 years old (N=3,196) | p       |
|---------------------------------------------------------------------------|-----------------|-----------------------------|-----------------------------|---------|
|                                                                           | n          | %             | n          | %             | n          | %             |       |
| **Prenatal care characteristics**                                         |               |               |               |               |               |               |       |
| Prenatal care location (n=4,555)                                         |               |               |               |               |               |               | 0.091  |
| Only public                                                              | 4,037      | 88.3          | 1,238       | 90.0          | 2,799       | 87.6          |       |
| Some private consultations                                               | 455        | 9.9           | 109         | 7.9           | 345         | 10.8          |       |
| No prenatal care                                                          | 63         | 1.4           | 20          | 1.5           | 43          | 1.3           |       |
| The same professional at prenatal care and childbirth (n=4,567)           |               |               |               |               |               |               | 0.199  |
| Yes                                                                      | 341        | 7.5           | 90          | 6.6           | 251         | 7.9           |       |
| No                                                                       | 4,226      | 92.5          | 1,283       | 93.4          | 2,943       | 92.1          |       |
| **Beginning of prenatal care (n=4,518)**                                  |               |               |               |               |               |               | 0.149  |
| 1st trimester                                                            | 2,122      | 46.4          | 576         | 41.9          | 1,546       | 48.4          |       |
| 2nd trimester                                                            | 2,117      | 46.3          | 681         | 49.5          | 1,436       | 44.9          |       |
| 3rd trimester                                                            | 216        | 4.6           | 78          | 5.7           | 138         | 4.3           |       |
| No prenatal care                                                         | 63         | 1.4           | 20          | 1.5           | 43          | 1.3           |       |
| **Number of consultations (n=4,495)**                                     |               |               |               |               |               |               | 0.021  |
| Less than 6 consultations                                                 | 1,692      | 39.0          | 587         | 43.2          | 1,104       | 35.1          |       |
| More than 6 consultations                                                 | 2,741      | 61.0          | 750         | 55.3          | 1,990       | 64.4          |       |
| No prenatal care                                                         | 62         | 1.4           | 20          | 1.5           | 43          | 1.4           |       |
| **Prenatal care adequacy (n=4,454)**                                      |               |               |               |               |               |               | 0.006  |
| Inadequate/partially adequate                                             | 2,105      | 47.3          | 711         | 53.0          | 1,394       | 44.8          |       |
| Adequate/more than adequate                                               | 2,349      | 52.7          | 630         | 47.0          | 1,719       | 55.2          |       |
| **Registered on the examination card**                                    |               |               |               |               |               |               |       |
| Blood glucose                                                             | 2,739      | 59.9          | 786         | 57.2          | 1,953       | 61.1          | 0.052  |
| ASE                                                                      | 2,799      | 61.2          | 825         | 60.0          | 1,974       | 61.7          | 0.528  |
| Syphilis                                                                  | 2,887      | 63.2          | 842         | 61.2          | 2,045       | 64.0          | 0.183  |
| HIV                                                                      | 2,534      | 55.4          | 737         | 53.6          | 1,797       | 56.2          | 0.342  |
| **Underwent obstetric ultrasound (n=4,553)**                              |               |               |               |               |               |               | 0.072  |
| Yes                                                                      | 4,361      | 95.4          | 1,294       | 94.0          | 3,067       | 96.0          |       |
| No                                                                       | 129        | 2.8           | 52          | 3.8           | 77          | 2.4           |       |
| No prenatal care                                                         | 63         | 1.4           | 20          | 1.5           | 43          | 1.3           |       |
| **Labor characteristics**                                                |               |               |               |               |               |               |       |
| Type of childbirth financing (n=4,571)                                     |               |               |               |               |               |               | 0.942  |
| Public                                                                   | 4,325      | 94.6          | 1,302       | 94.7          | 3,023       | 94.6          |       |
| Private                                                                  | 246        | 5.4           | 73          | 5.3           | 173         | 5.4           |       |
| Childbirth pilgrimage (n=4,564)                                           |               |               |               |               |               |               | 0.041  |
| Yes                                                                      | 973        | 21.3          | 319         | 23.2          | 655         | 20.5          |       |
| No                                                                       | 3,591      | 78.7          | 1,053       | 76.7          | 2,538       | 79.5          |       |
| Childbirth type (n=4,571)                                                |               |               |               |               |               |               | 0.085  |
| Vaginal / Forceps                                                         | 2,875      | 62.9          | 896         | 65.2          | 1,978       | 61.9          |       |
| Cesarean section                                                         | 1,696      | 37.1          | 478         | 34.8          | 1,218       | 38.1          |       |
| **Episiotomy* (n=2,873)**                                                |               |               |               |               |               |               | 0.042  |
| Yes                                                                      | 1,609      | 35.2          | 543         | 39.5          | 1,066       | 33.4          |       |
| No                                                                       | 1,264      | 27.7          | 354         | 25.7          | 910         | 28.5          |       |
| **Perineal Laceration* (n=2,873)**                                        |               |               |               |               |               |               | 0.015  |
| Yes                                                                      | 616        | 21.4          | 162         | 18.1          | 454         | 23.0          |       |
| No                                                                       | 2,257      | 78.6          | 735         | 81.9          | 1,522       | 77.0          |       |
| **Kristeller maneuver* (n=2,873)**                                        |               |               |               |               |               |               | 0.552  |
| Yes                                                                      | 96         | 3.3           | 26          | 2.9           | 70          | 3.5           |       |
| No                                                                       | 2,777      | 96.7          | 871         | 97.1          | 1,906       | 96.5          |       |

*Only for women who had vaginal childbirth.*
Discussion

The proportion rate of adolescents in “Nascer no Brasil” (Born in Brazil) sample reached 19.1%.

The percentage rate of adolescence pregnancy in Brazil in comparison to the total number of births has been decreasing: 19.3% in 2010 and 17.5% in 2016; however, its distribution is unequal around the country. A geo-processing study that has analyzed adolescence pregnancy’s spatial variation in Brazil has evidenced that the North, Northeast and Midwest regions account for the highest adolescence fertility medians for women in 15-19 years old group (93.5/1,000, 73.1/1,000 and 69.3/1,000, respectively), as well as the highest number of adolescence mothers whose schooling is lower than

Table 3
Analysis of obstetric history, and maternal and neonatal complications, “Nascer no Brasil” (Born in Brazil). Brazil, 2011-12.

| Variables                                      | Total (N=4,571) | 12-16 years old (N=1,375) | 17-19 years old (N=3,196) | p  |
|-----------------------------------------------|----------------|---------------------------|----------------------------|----|
| Obstetric history                             |                |                           |                            |    |
| Number of pregnancies (n=4,570)               |                |                           |                            |    |
| Primiparous                                   | 3,721          | 1,285                     | 2,436                      | 0.001 |
| ≥ 2 pregnancies                               | 849            | 90                        | 760                        | 0.001 |
| Intention to get pregnant (n=4,539)           |                |                           |                            |    |
| Yes                                           | 1,574          | 407                       | 1,167                      | 0.001 |
| No                                            | 2,965          | 953                       | 2,011                      | 0.001 |
| Pre-existing diseases                         |                |                           |                            |    |
| Pre-gestational high blood pressure           | 83             | 29                        | 54                         | 0.572 |
| Pre-gestational diabetes                      | 26             | 10                        | 16                         | 0.400 |
| Heart diseases                                | 15             | 5                         | 10                         | 0.864 |
| Previous obstetric history                    |                |                           |                            |    |
| Abortion                                      | 360            | 61                        | 299                        | 0.001 |
| Low birth weight                              | 114            | 11                        | 103                        | 0.001 |
| Prematurity                                   | 94             | 11                        | 83                         | 0.001 |
| Cesarean section                              | 292            | 39                        | 253                        | 0.001 |
| Maternal complications                        |                |                           |                            |    |
| Urinary infection                             | 724            | 219                       | 505                        | 0.953 |
| Hypertensive disease in pregnancy             | 338            | 87                        | 251                        | 0.079 |
| Placenta previa                               | 11             | 4                         | 7                          | 0.840 |
| Gestational diabetes                          | 205            | 54                        | 151                        | 0.269 |
| Eclampsia                                     | 24             | 9                         | 15                         | 0.616 |
| Placental abruption                           | 49             | 20                        | 29                         | 0.243 |
| Syphilis                                      | 41             | 8                         | 33                         | 0.128 |
| Neonatal complications                        |                |                           |                            |    |
| Low birth weight                              | 461            | 141                       | 320                        | 0.712 |
| Gestational age (n=4,571)                     |                |                           |                            | 0.014 |
| Spontaneous prematurity                       | 464            | 183                       | 281                        | 8.8  |
| Obstetric intervention prematurity             | 133            | 34                        | 99                         | 3.1  |
| Spontaneous early term                        | 1,037          | 310                       | 727                        | 22.7 |
| Intervention early term                       | 396            | 117                       | 279                        | 8.7  |
| At term                                       | 2,541          | 731                       | 1,810                      | 56.6 |

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eight years. These findings result to the fact that the fertility rate in adolescents is opposite to their schooling levels. A study carried out in Rio de Janeiro with 59,600 live births of adolescent and young adult women has pointed out that got pregnant and presented inadequate schooling had higher chances in getting pregnant again (RR=2.1; CI95%=1.8-2.4). Pregnant adolescents who have history of violence presented the lowest schooling, the highest school dropout and the lowest family income levels, as well as lack of short-term life projects. Although, these adolescents, even with the mean age being higher than non-pregnant adolescents, were behind in schooling (p<0.01), only 20% of them were still going to school.

In total, 70% of the pregnant women younger than 18 years old in the countryside of Goiás State have the lowest socioeconomic level, 30% were single, 88% were unemployed and 75% did not plan in getting pregnant. Girls in African and Asian countries, who were not in school, presented close association with sexual initiation, pregnancy and early marriage. All these vulnerable factors need to the worked at schools, health services and by the community, so that pregnancy at adolescence could be avoided.

A community intervention strategy in India was placed by information centers for adolescents of both sexes, ages between 10-24 years old, has significant reduction effect on both early marriage (OR=2.25; CI95%=1.2-3.9) and early pregnancy (OR=3.0; CI95%=1.0-8.4), and an increasing number of adolescents in school (OR=2.96; CI95%=2.0-4.3). An intervention study carried out with adolescents in Zambia, which was part of a randomized study focused on Girls Empowerment, known as RISE, has shown that sexual and reproduction education programs based on participatory focus groups, and on orientation about birth control methods, are effective in reducing unplanned pregnancy.

Less than 10% of the adolescents reported to have smoked during pregnancy, mainly the ones in the 17-19 years old age group. Studies performed in Piracicaba (Brazil) and in Bradford (England) have found association between pregnant adolescents and smoking during pregnancy in comparison to adult women. Tobacco use during pregnancy can lead to placental malformation and increase the chances of both prematurity and low birth weight.

Factors such as inadequate pre-gestational BMI, malnutrition in adolescents in the 12-16 years old age group and overweight in pregnant women in the 17-19 years old age group can also contribute to negative outcomes in babies. On the other hand, adolescents presenting adequate pre-gestational weight demonstrate better neonatal outcomes, such as adequate birth weight (p=0.018), as observed in a research carried out at a public maternity hospital in Rio de Janeiro, with 542 puерperal adolescents.

A meta-analysis that encompassed studies, whose first childbirth regarded to young mothers at young gynecologic age (≤2 years since menarche) or at chronological age (≤16 years), have associated maternal nutrition variables (anemia, pre/post gestational weight and anthropometric measurements) to neonatal outcomes (low birth weight, very low birth weight and premature childbirth). The youngest mothers, mainly the 16 years old ones, have higher chances in negative prenatal outcomes such as prematurity (OR=1.68; CI95%=1.34-2.11). Adolescent women in Bradford, England, showed higher chances in extremely early childbirth (at gestational age <28 weeks) than adult women (OR=5.06; CI95% =1.23-20.78).

Prematurity was most often spontaneous, as reported by Almeida (2018). Young adolescents (12-16 years) presented the highest chances of spontaneous prematurity in comparison to older adolescents (OR = 1.49; CI95% =1.07-2.06) and young adult women (OR = 2.38; CI95% =1.82-3.12). A study conducted in Maringá City, RS – Brazil, presented a growing trend of premature childbirths (gestational age lower than 37 weeks) by puerperal adolescents between 2013-2015. A likely explanation to such a finding lies on the fact that adolescent mothers’ babies can show such an outcome due to fetus/mother competition for nutrients.

The Ministry of Health highlights that women must attend to at least 6 prenatal consultations. Furthermore, early adhesion to prenatal care (in the first trimester of pregnancy) reduces the chances of maternal and neonatal morbidities. However, adolescents, mainly the youngest ones, can delay the beginning of prenatal care and have inadequate prenatal care due to late pregnancy diagnosis, uncertainties Inaccepting the pregnancy, lack of support and/or difficulty in the relationship with family members and/or with the baby’s father. Furthermore, these adolescents have to deal with the obstacles to access the public health systems, mainly due to social and economic reasons.

Birth pilgrimage, which is an indicator to the lack of quality in care for the pregnant women, was associated with the youngest mothers; which can cause unfavorable outcomes. A study carried out in mid- and small-size cities in Vale do Jequitinhonha...
(MG, Brazil), and in the Northeast and North regions of the country, has shown no association between maternity during prenatal care and child death (OR=1.28; CI95% =1.02–1.61).28

Vaginal birth was the most frequent among puerperal adolescents (62.9%), percentage considered to be low, since WHO states that there is no maternal and neonatal morbidity reduction when Cesarean section rates are higher than 15%.1 Scientific evidences have shown that unnecessary Cesarean sections must be avoided, mainly among primiparous, low-risk women, with babies at term baby in a cephalic position, as well as adolescents, since there are higher chances of Cesarean sections in posterior pregnancies when the first labor is also through cesarean – it also increases the chances of placental complications.17

The low rate of childbirth in private hospitals (5.4%) among Brazilian adolescents in comparison to the total population (19.9%)17 points towards the unfavorable socioeconomic conditions of this age group. Furthermore, there were inequalities among the adolescents, themselves, since white puerperal adolescents, who have health insurance and adequate schooling, registered the highest chance of having a surgical childbirth. Cesarean sections are closely related to higher chances of having a surgical childbirth – just for the record, cesarean sections are closely related to better socioeconomic conditions.1

Rede Cegonha (Stork Network) recommends not to conduct episiotomy during vaginal childbirth, except for situations when it is really indicated,29 since this intervention contributes to severe perineal lacerations (OR= 3.82; CI95% =1.96-7.42). These lacerations are associated with the first pregnancy of most adolescents (OR =3.24; CI95% =2.20-4.76), as shown in the results of a meta-analysis carried out in an international research.30 However, the scientific literature highlights that by using good practices during childbirth in hospitals, one can observe a reduced number of episiotomies;29 thus, it improves the recovery and the perception about the vaginal childbirth experience.

Despite the wide range of collected data, this study presents some limitations. The time spent for data collection (2011-2012) and the exclusion of hospitals registering less than 500 births/year. However, the highlights are: the first national study based on obstetric and perinatal data, which allows a wide panorama about labor and births in Brazil; it covers all the Brazilian States and represents 2,337,475 births, 80% of them between 2011 and 2012. Moreover, puerperal adolescents represented almost 20% of the national sample, including public, private and mixed hospitals.

It is noteworthy that motherhood in adolescence does not occur in a homogeneous way, it is almost exclusive phenomenon to the low-income class women, which affects in being behind in schooling and do not have the intention to get pregnant. This study also stands out for the herein assessed age groups; the 12-16 years old age group registered the highest socioeconomic vulnerability, prenatal care and neonatal childbirth complication rates. This finding points out the need of multi-professional and specialized care for these adolescents.

The specificity of pregnant adolescents must be taken into consideration by health professionals in prenatal care, childbirth and puerperal care services; in other words, they must take into account their needs, be empathetic to them and build a bond relationship based on trust and affection. It is recommended for pregnant adolescents to find family support since the very beginning of their pregnancy in order to increase adhesion of prenatal care and the likelihood of having a safer childbirth.

Finally, scientific evidence must be taken into consideration at the time to elaborate sexual and reproductive health policies focused on adolescents, with emphasis on high-quality comprehensive sexual education since the early ages. Unplanned pregnancy prevention campaigns must be properly dialogued with the healthcare reality in Brazil, mainly with adolescents presenting higher social vulnerability.

Authors’ contribution

Assis TSC: conception, planning, analysis, interpretation of the results and manuscript writing. Martinelli KG, Santos Neto ET and Gama SGN: conception, planning, interpretation of the results and final review of the manuscript. All authors have approved the final version of the manuscript.
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