

Trends of teenage pregnancy in Brazil, 2000-2011

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SUMMARY

Objective: To evaluate the frequency of teenage pregnancy in Brazil, from 2000 to 2011, in all five Brazilian macroregions and age groups (10-14 and 15-19 years), correlating it with the human development index (HDI).

Method: Descriptive epidemiological study, with cross-sectional design, performed by searching the database of the National Health System (Datasus), using information from the Information System (Sinasc).

Results: There was a decrease in the percentage of live births (LB) from teenage mothers (10-19 years) in Brazil (23.5 % in 2000 to 19.2 % in 2011). This reduction was observed in all Brazilian macroregions in the group of mothers aged 15 to 19 years. The number of LB increased by 5.0% among mothers aged 10-14 years (increase in the North and Northeast and decline in the other macroregions). The proportion of LB shows an inversely proportional trend to HDI score, with the Southeast having the highest HDI and the lowest proportion of LB to teenage mothers in the country.

Conclusion: Brazil shows a decline in the percentage of LB to adolescent mothers, tending to be inversely related to HDI score. It is important to empower strategies to address the problem, so that teenage pregnancy is seen as a personal decision rather than the result of a lack of policies targeting adolescent health.

Keywords: pregnancy in adolescence, prevalence, epidemiology, social conditions, adolescent, human development.

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INTRODUCTION

According to the World Health Organization (WHO) adolescence is the period between 10 and 19 years old;¹ it is a phase of intense physical, biological and emotional changes, marked by affective relationships and often the start of sexual experiences.

Factors related to early pregnancy most often cited include: accelerated sexual maturation, early onset of sexual life, fragile family unit, and uncontrolled urbanization process with significant changes in lifestyle.² Teenage pregnancy tends to be inversely proportional to the level of education. Many of these young women remain outside the education system for several years, suggesting an association between early pregnancy and delay or interruption of formal education.³⁻⁶

Heilborn et al. (2002) call attention to the fact that for a long time, adolescence was the ideal time in life to have a child. The redefinitions of social expectations placed

on young people nowadays and the current possibility of experiencing sexuality not linked to reproduction turned pregnancy into lost opportunities in youth.⁷

Indeed, teenage pregnancy brings about profound changes in the lives of these young women, especially in terms of emotional, educational, social and economic aspects.⁸ When psychological and social indicators related to pregnancy are evaluated, the downside for adolescents can be clearly noticed. Particularly in the case of single mothers, it triggers and extends a series of events that disrupt the harmony of the adolescent's personal development and her family life.^{3,4,6,8}

For these reasons, teenage pregnancy has been the object of concern of government agencies, health and education professionals, and the entire society. Many programs to reduce its prevalence have been deployed in the last two decades.⁹ Although fertility rates in this age group, contrary to what is stated in many studies, are declining

globally, about 18 million girls aged under 20 years give birth each year,¹⁰ with a frequency of live births to teenage mothers that varies from country to country.⁵

However, teenage pregnancy is not always viewed negatively. Gontijo and Medeiros discussed a number of studies dealing with perceptions of pregnancy among adolescents in personal and social risk, identifying that, in these groups, pregnancy can be viewed positively because motherhood takes on a central role, offering new possibilities for social recognition and action.¹¹

Regarding the biological aspect, Mathias et al. concluded that all adolescents at the time of pregnancy reach similar biological and endocrine maturity, as well as obstetrical performance. Progression that is less satisfactory for early adolescents (age below 15 years) is due to unfavorable socioeconomic conditions associated with insufficient control of prenatal care.¹²

The great importance of teenage pregnancy lies in its social aspects, not in biological and/or medical issues, as once believed, for it is still an unresolved problem in developing and also in some developed countries.¹³ The main associated factors are: low education of the adolescent, maternal history of teenage pregnancy, lack of previous gynecological appointments and lack of access to contraceptive methods.³

Teenage pregnancy is a gateway to poverty because it leads to decrease in the array of social and economic opportunities, including access to school. Thus, it is a complex and multifactorial phenomenon, encompassing economic, educational and behavioral aspects.^{3,10,14}

In Brazil, a reduction of teenage pregnancy has been observed since 2000. As the frequency of live births to teenage mothers also varies between regions in the same country, being a reflection of economic conditions, cultural differences and access to health services and contraceptive methods,⁵ we prepared this study aimed at assessing the frequency of teenage pregnancy in Brazil, in the period from 2000 to 2011, in the five macroregions of the country, focusing on two age groups (10-14 and 15-19 years), correlating the above with the human development index (HDI) of each region.

METHOD

This cross-sectional, descriptive study was conducted with data from the Brazilian Live Births Information System (Sinasc) of the Unified Health System (Datusus), a system run by the Department of Health Situation Analysis, under the Health Surveillance Department, in conjunction with the State and Municipal Health Departments. These

bodies gather all statements of live birth (SLB) issued by health facilities and registry offices (in the case of home birth) and enter the information contained therein in the Sinasc system.¹⁵

Overall, the state health departments send their databases to the Ministry of Health, which can only consider the National Base complete when all states send their data. Then, consolidation is made, including redistribution of data by place of residence, which is the traditional way to present live birth data. The SINASC collects about 30 variables of SLB, made available for data analysis over the internet. To conduct this study, we used the following variables: birth according to the mother's place of residence, birth by region in Brazil, year of birth, and mother's age.¹⁵

The study population consisted of all women who had LB in the years 2000 to 2011 in the five macroregions of Brazil. We sought information on the total number of LB by macroregion, as well as within the age groups 10-14 and 15-19, to calculate the percentage of LB to teenage mothers. Of the total LB, those recorded as age of the mother unknown (56,564 LB in 2000-2005 and 1,048 LB in 2006-2011) were excluded. The association between the frequency of teenage pregnancy and the human development index (HDI) of each region was also analyzed. HDI is a summary measure of long-term progress in three basic dimensions of human development: income, education and health.¹⁶ The 2010 census provides the HDI score by state/municipality, and therefore we calculated the average HDI for states weighted by population to obtain the HDI score of each region.

Absolute and relative frequencies of the number of LB by mother's age group and year of occurrence were calculated. The percentage increase or decrease of 2000-2011 was calculated using the expression: $[(\% \text{ of LB in } 2011 - \% \text{ of LB in } 2000) / \% \text{ of LB in } 2000] \times 100$. Graphic models were used to describe the results.

The theoretical basis for writing the article constituted on review of medical literature available through the search of publications in PubMed, SciELO, Lilacs and academic Google using as keywords: "pregnancy in adolescence", "prevalence", "epidemiology", "social conditions", "human development", "gravidez na adolescência", "prevalência", "epidemiologia", "condições sociais" and "desenvolvimento humano". The articles were assessed by two reviewers, who selected a total of 26 references, including official publications available on the internet.

Since these are databases in the public domain, submitting the project to the ethics committee of the institution was not required.

RESULTS

By analyzing the number of LB to mothers aged 10 to 14 years in the period from 2000 to 2011, an increase was found in the Northern and Northeastern macroregions (12.5% and 13.4%, respectively), while other Brazilian macroregions showed decline (3.6% in the Southeast; 13.0% in the South; and 14.3% in the Midwest).

As for the number of LB to mothers aged 15 to 19 years in the same period, a reduction was seen in all Brazilian macroregions (15.0% in the North; 17.6% in the Northeast; 19.9% in the South; 22.0% in the Southeast; and 27.9% in the Midwest) (Figure 1).

In Brazil as a whole, there was an increase of 5.0% in the number of LB to mothers aged from 10 to 14 years, and a 19.1% decline among mothers in the age range from 15 to 19 years.

Table 1 shows the distribution of LB by mother's age, and the number of records with mother's age unknown, indicating decline in the percentage of LB to teenage mothers (10 to 19 years) in Brazil comparing 2000 with

2011 (from 23.5% in 2000 to 19.2% in 2011) and improved data quality, since the number of mothers whose age is ignored declined, especially after 2005. Such decline in the number of LB was boosted by mothers in the age range from 15 to 19 years in all of the Brazilian macroregions.

Regarding the HDI of 2010 by macroregion, the Southeast had the highest score (0.76), followed by the South and the Midwest (0.75), the North (0.67) and the Northeast (0.66) of Brazil. The proportion of LB to teenage mothers in the Southeast is the lowest in the country, which is the macroregion with the highest HDI. Thus, the proportion of LB tends to be inversely proportional to the HDI score (Table 2).

DISCUSSION

This study points out the relationship between teenage pregnancy and social, educational, economic and cultural factors in the population, showing that these are increasingly active in the decision to postpone pregnancy. The data obtained revealed that in Brazilian macroregions

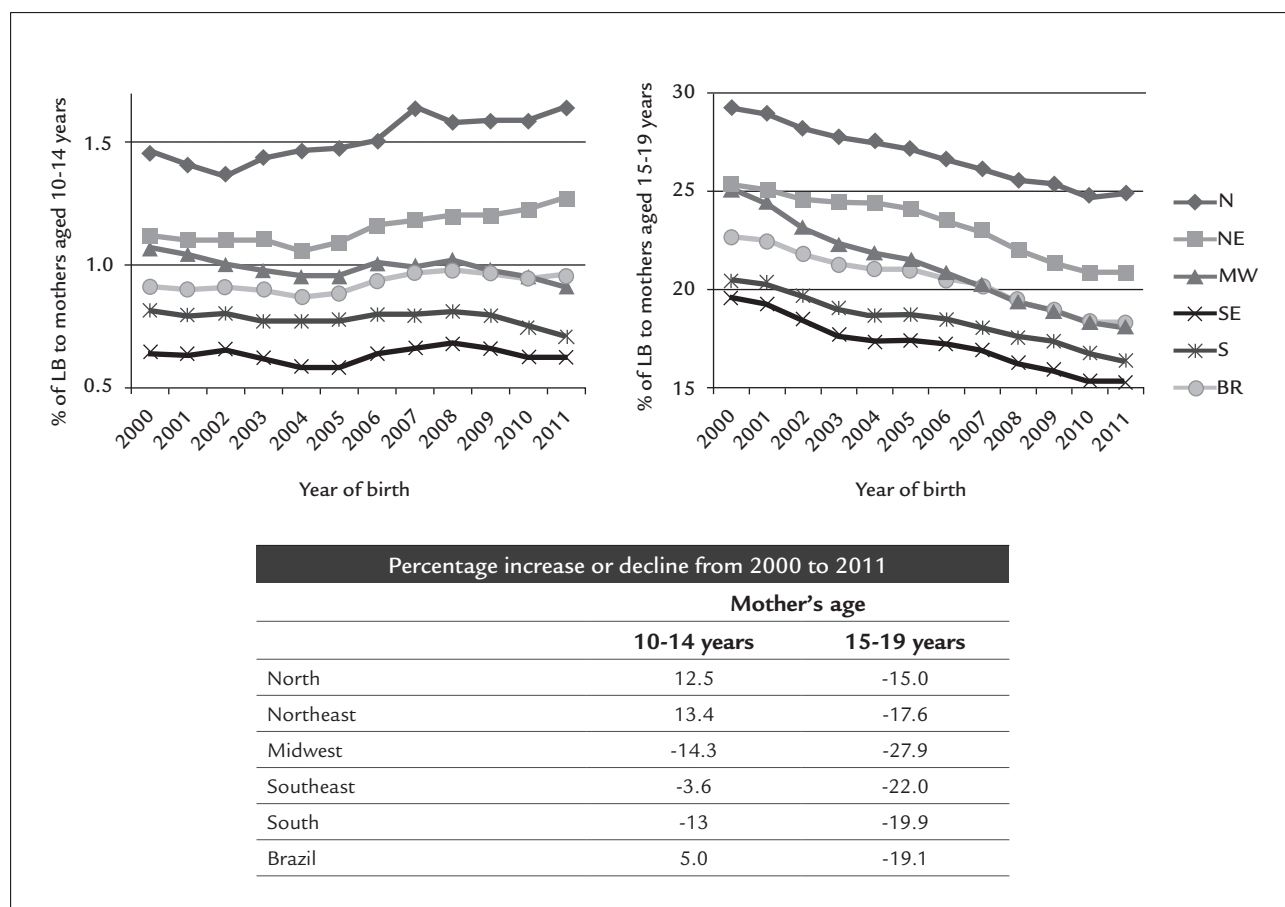


FIGURE 1 Relationship between the percentage of live births to mothers in the age ranges 10-14 and 15-19 years in the period 2000-2011 by macroregion.

TABLE 1 Distribution of live births according to maternal age.

Age	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Northern region												
10 to 14	4209	4194	4116	4461	4514	4624	4773	5101	5086	4929	4864	5136
15 to 19	84552	86321	84923	86245	84959	85255	84474	81479	82328	78837	75829	77971
Ignored	1566	1446	513	659	557	920	5	4	0	3	13	4
Total LB	290708	299388	301208	311335	309136	314858	317493	311813	321998	310726	306422	313745
Northeastern region												
10 to 14	10247	10277	10193	10257	9604	10047	10287	10389	10621	10385	10292	10811
15 to 19	231791	233959	227274	226102	221395	222482	208291	201889	195585	184903	174929	177593
Ignored	11277	9922	4822	3619	3108	2670	35	27	21	18	31	10
Total LB	926104	942141	929717	930145	910775	924983	887306	878588	888268	865098	841160	851004
Midwestern region												
10 to 14	2470	2374	2277	2213	2198	2209	2232	2133	2264	2163	2100	2069
15 to 19	58199	55477	52565	50392	50161	49709	46284	43535	43246	41567	40525	41013
Ignored	932	466	296	201	296	189	38	8	80	53	101	44
Total LB	232705	227515	227193	225965	229596	231307	221672	215260	222658	220168	220788	226577
Southeastern region												
10 to 14	8375	7795	7825	7312	6894	6837	7288	7453	7705	7413	7028	7087
15 to 19	255001	236617	220729	208866	204148	203667	196111	189945	184178	178087	172266	174613
Ignored	3997	2445	1595	1175	925	979	665	293	35	18	28	34
Total LB	1306235	1230473	1195168	1181131	1178915	1171841	1139395	1122809	1130407	1119231	1123593	1143741
Southern region												
10 to 14	3672	3291	3253	2996	3066	3035	3030	2887	3002	2917	2765	2682
15 to 19	92021	84581	79946	74201	74351	73272	70110	65561	65223	63565	62032	61913
Ignored	799	457	240	191	175	127	30	9	7	8	21	5
Total LB	451009	415957	406116	389675	398126	392107	379062	362858	371497	366358	369905	378093
Brazil												
10-14	28973	27931	27664	27239	26276	26752	27610	27963	28678	27807	27049	27785
15-19	721564	696955	665437	645806	635014	634385	605270	582409	570560	546959	525581	533103
Ignored	18571	14736	7466	5845	5061	4885	173	341	143	100	194	97
Total LB	3206761	3115474	3059402	3038251	3026548	3035096	2944928	2891328	2934828	2881581	2861868	2913160

LB: live births.

TABLE 2 Relationship between the average percentage of live births to mothers in the age ranges 10-14 and 15-19 years in 2010 and HDI score (2010) by macroregion.

Macroregions	LB-10-14 years (2010) %	LB-15-19 years (2010) %	HDI 2010
Southeast	0.63	15.33	0.76
South	0.75	16.77	0.75
Midwest	0.95	18.36	0.75
North	1.59	24.75	0.67
Northeast	1.22	20.80	0.66

LB: live births.

with higher HDI (South, Southeast and Midwest) there are lower rates of LB to adolescent mothers, which can be correlated as a possible marker of development.

Increasing education leads to increased use of contraceptive methods, a trend that first sexual intercourse does not happen early without proper protection, and the value of forming smaller families.¹⁷

Corroborating these data, Duarte et al. observed, in Santo André (greater area of São Paulo), that the areas with the worst social exclusion contained the largest number of live births to teenagers, concentrating the largest number of adolescents with less education and low birth weight babies.⁵

Likewise, Martinez et al. showed that teenage pregnancy occurs most often in environments punctuated by limited opportunities and fewer options in life. This conclusion was based on the observation that municipalities with low HDI and higher incidence of poverty are those with the highest percentages of teenage pregnancy. In addition, these percentages are associated with low levels of education, noting that the literature shows that interruptions in the educational path prior to pregnancy perpetuate the status of social exclusion for many generations among the women from the same family.^{4,6}

Currently, another major concern is the high rate of recurrence of teenage pregnancy. Silva et al.²⁰ describe as the main factors associated with recurrence of teenage pregnancy: first sexual intercourse before the age of 15 years, first pregnancy before the age of 16, stable relationship with a same partner, not taking care of the children, and family income below the minimum wage, demonstrating a special association between reproductive and socioeconomic factors.¹⁸ This concern is even more relevant considering that at each new pregnancy, the likelihood of that the adolescent will finish school, have a stable job and become economically self-sufficient decreases.¹⁹ In Rio de Janeiro, the rate of repeated pregnancy in the second half of adolescence (between 15 and 19 years) was 13.5%, while in São Paulo 15.3% of pregnant women were multigest. These young women have poorer education, lower adherence to prenatal care, reduced weight gain, shorter intervals between births, and less stable marriages compared to adults or pregnant women of the same age in their functional debut.²¹

The Ministry of Health (MH) estimates that approximately one million teenagers become pregnant every year in Brazil. Of each five newborns registered in vital records in 2007, one was born to a teenage mother (20.1%), an approximate contingent of 553,548 children, of which 19.3% were born to mothers aged 15 to 19 years, and 0.8% to mothers in the age range from 10 to 14 years (IBGE, 2007).²²

Fertility among adolescents can be considered one of the best health quality indicators in a modern country. In developing countries, there is, in terms of age, an expectation to follow the sexual behavior patterns of the developed countries without the necessary State counterpart to provide adequate education, as well as the due levels of service for attention and care that are absolutely crucial.²³

In industrialized Europe, a study of women aged 15 years or older showed that Italy and the Netherlands have the lowest rate of teenage mothers (2.3%).²⁴ In Eastern Europe, the proportions are higher for Georgia (21%), Bulgaria (20.5%) and Ukraine (19.5%).²⁵

The teenage birth rates in the USA fell by 37%, declining from 61.8/1,000 in 1991 to 39.1/1,000 in 2009, with largest frequencies among Hispanic (70.1) and Black (59.9), and lowest among Caucasian adolescents (25.6). The rate of teenage pregnancy in the US is higher than in Canada (13.7/1,000).²⁶

CONCLUSION

As for Brazil, the present study showed a decline in the percentage of LB to teenage mothers (23.5% in 2000 to 19.2% in 2011), caused by decrease in the percentage of LB to mothers in the age range from 15 to 19 years, in contrast with a discreet increase among girls younger than 15 years during the study period.

The results of this study may be underestimated because the available data comprise information of pregnancies carried to term with live births, not taking into account all the others that had unfavorable outcomes, such as pregnancy complications or abortion. A limitation of this study was the proportion of mothers with unknown age, since the authors cannot know if there were teenagers in this group, which may not have been counted. However, over the years, there was significant reduction of mothers with unknown age, particularly after 2005, which indicates an improvement in data quality.

Proper prenatal care to pregnant adolescents can promote early diagnosis and correct risk factors for low birth weight, especially among the younger pregnant girls.¹³ It is very important that our teenagers are able to improve their social, economic and cultural situation; that they are encouraged to study, increasing prospects for a better future; that they are also encouraged to adopt a more positive attitude toward sexuality and family planning; and receive assistance that provides information on manners to practice safe and responsible sex. The availability of care centers aimed at promoting adolescent health, family planning and prevention of sexually transmitted diseases, with a multidisciplinary medical team could lead to reduced risk of pregnancy in adolescence.⁸

Teenage pregnancy can lead to repercussions within society and the girls themselves (marking and affecting their entire life). From the standpoint of the community and the government, this phenomenon is strongly associated with low education levels and negative impact on potential economic rise, triggering problems and disadvantages derived from early motherhood. Therefore, despite statistics showing a small decline in frequency, there is no doubt that strengthening strategies to address the problem is necessary, so that teenage pregnancy can be a woman's own decision, and not a result of lack of public policies targeted to adolescents.

RESUMO

Tendências da gravidez na adolescência no Brasil, 2000-2011

Objetivo: avaliar a frequência da gravidez na adolescência no Brasil, no período entre 2000 e 2011, nas cinco diferentes regiões brasileiras e por faixas de idade (10 a 14 e 15 a 19 anos), correlacionando com o índice de desenvolvimento humano (IDH).

Método: estudo epidemiológico, descritivo, com desenho transversal, realizado por busca no banco de dados do sistema único de saúde (Datasus), utilizando informações do Sistema de Informação sobre Nascidos Vivos (Sinasc).

Resultados: ocorreu queda do percentual de nascidos vivos (NV) de mães adolescentes (10 a 19 anos) no Brasil (23,5% em 2000 para 19,2% em 2011). Essa redução foi notada em todas as regiões brasileiras na parcela de mães entre 15 e 19 anos. O número de NV aumentou 5,0% entre mães de 10 a 14 anos (incremento no Norte e Nordeste e redução nas demais regiões). A proporção de NV mostra tendência inversamente proporcional ao IDH, tendo o Sudeste o maior IDH e a menor proporção de NV de mães adolescentes no país.

Conclusão: o Brasil apresenta declínio do percentual de NV de mães adolescentes, com tendência a estar inversamente relacionado ao IDH. É importante intensificar as estratégias de abordagem do problema, a fim de que a gravidez na adolescência seja uma decisão própria e não consequência da falta de políticas públicas direcionadas ao adolescente.

Palavras-chave: gravidez na adolescência, prevalência, epidemiologia, condições sociais, adolescente, desenvolvimento humano.

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