



EDITORIAL

Preterm birth: temporal trends and socioeconomic inequalities^{☆,☆☆}



Nascimento prematuro: tendências temporais e desigualdades socioeconômicas

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Socioeconomic inequalities in perinatal health have been consistently observed across many high- and low-middle income countries.¹ Quantifying and monitoring socioeconomic inequalities in health is an important first step toward reducing health inequity and improving population health.

Brazil has long been ranked among the countries with the largest inequalities in both socioeconomic position and health.^{2,3} In this issue of the *Jornal de Pediatria*, Sadovsky et al.⁴ report income inequalities in preterm birth (PTB, <37 completed weeks of gestation) in the city of Pelotas over a 30-year period. The authors estimated the slope index of inequality (SII) and the relative index of inequality (RII) of income in PTB rates among almost all births in Pelotas in 1982, 1993, 2004, and 2011.

Relative and absolute health differences between groups provide different and complementary information, which can lead to different conclusions, particularly when the focus is monitoring changes in inequality over a prolonged time period.⁵ Proportions of a population within any socioeconomic group – e.g., individuals with a university education – inevitably change over time and may differ by

geographic region. The SII and RII incorporate these changes in size of each group and yield inequality estimates that are comparable across time and place. However, SII and RII are based on a linear association between socioeconomic position and health,⁶ and therefore assume that each step up in income quintile results in an equivalent change in PTB rate. According to Table 2, the linear trend appears to hold for the 2004 cohort, but the patterns for the other cohorts suggest more of a threshold effect. That may help explain the absence of significant socioeconomic inequalities in those other cohorts.

Sadovsky et al.'s synthesis provides a useful contribution to understanding temporal changes in income inequalities in PTB in Pelotas. Nonetheless, relevant questions remain unanswered. An important observation is that overall PTB rates increased substantially over time, irrespective of income, while income-based inequalities in PTB were observed only among 2004 births after adjusting for potential confounding factors. In fact, temporal changes in PTB rates across cohorts were far greater than differences by income quintiles within cohorts. The fact that the PTB rate dropped slightly in 2011 may reflect the inclusion criteria for Intergrowth-21, which restricted recruitment to low-risk women.⁷ The temporal increase is likely to reflect major changes in obstetric practices, i.e., labor induction and/or pre-labor cesarean delivery, which affected all income quintiles. In addition to examining within-cohort changes, exploring the factors contributing to the strong temporal trends across cohorts would be very informative. The obesity epidemic and clear socioeconomic pattern of

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overweight/obesity in Brazil⁸ may also help explain the observed increase in PTB over time, and perhaps even the negative association between income and PTB observed within cohorts.

In the Discussion section, the authors note that the PTB rate was substantially lower in the Northeast region (10.2% in 1998), the poorest area in Brazil, when compared with that in Pelotas (10.9% in 1993 and >13% in both 2004 and 2011) in the Southeast region, the richest area of the country. This opposite socioeconomic pattern within Brazil reinforces our point above about healthcare practices. Women living in urban areas in the Southeast (particularly those with higher income) are more likely to have access to private health care, and hence to labor induction and pre-labor cesarean delivery, including those procedures carried out prior to 37 completed weeks. This might also help explain the fact that PTB rates in Pelotas are higher than the Brazilian national average.

Finally, subdividing overall PTB by gestational age helps to understand its neonatal health consequences (which differ substantially by gestational age). Subdividing by birth weight, however, can be misleading. Birth weight is of course highly dependent on gestational age, but the low birth weight (LBW) cut-off of <2500 g does not account for the fact that preterm infants have lower mean birth weights at every preterm gestational age than fetuses who remained *in utero* at the same gestational age. In our opinion, it would be more useful to subdivide PTB into spontaneous (due to spontaneous preterm labor or preterm pre-labor rupture of membranes) vs. iatrogenic (labor induction or pre-labor cesarean delivery before term for maternal or fetal indications, or for non-medical reasons). The frequency of iatrogenic PTB has increased in high- and middle-income countries, including Brazil,⁹ and iatrogenic PTB for non-medical reasons account for a large proportion of total iatrogenic PTBs.¹⁰ Given the temporal trend in iatrogenic PTB in Brazil, assessing income inequalities in spontaneous vs. iatrogenic PTB would help inform clinical practice and public health policy in the country.

Conflicts of interest

The authors declare no conflicts of interest.

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