Factors Associated to Infant Deaths in Brazil: A Multilevel Analysis of Census and Vital Registry Data.

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INTRODUCTION: Infant mortality rates are high in Brazil, despite the decreasing trend. The study aimed to investigate the association between mother, household and community characteristics and deaths of infants aged less than one year.

METHODS: A cross-sectional study was conducted with data from the Brazilian demographic census 2010 and from national vital registry data. Information on births and deaths were obtained from the fertility questionnaire responded by a census-derived sample of 8,628,093 women aged >10 years. Hierarchic multilevel Poison regression models were fitted to test the associations ($P<0.05$). Variables with $P<0.2$ were kept in the final model to adjust for possible confounding.

RESULTS: The infant mortality rate (IMR) estimated indirectly using census data was 18.4 deaths per 1,000 live births. At the adjusted analysis, the IMR ratio was 10.60 (95% CI 9.54; 11.78) for mothers aged ≥40 years compared to younger, 2.86 (95%CI 2.39; 3.43) with no education compared to those with higher; 1.37 (95% CI 1.25; 1.51) whose income was less than ½ minimum wage compared to those with higher income; 1.10 (95% CI 1.01; 1.18) for households with inadequate sewage systems compared to those with adequate; 1.12 (95% CI 1.03; 1.27) for municipalities with lower coverage of at least seven prenatal examinations (≤41.1%) compared to those with higher; 1.65 (95% CI 1.45; 1.89) with higher poverty rates (≥17.9%) compared to those with lower; 1.13 (95%CI 1.02; 1.19) with higher unemployment rates (≥9.3%) compared to those with lower, and 1.44 (95% CI 1.30; 1.60) with higher proportion of unassisted deaths compared with lower. Inadequate solid waste management, lack of piped water, coverage of primary family health program, and 20/20 income ratio showed no association after adjustment.

CONCLUSIONS: Mother and community characteristics have strong effects over infant deaths and should be considered for planning of interventions aiming to promote further IMR reductions in Brazil.