Abstract citation ID: ckaf161.567
Socioeconomic deprivation and congenital anomalies: spatial patterns in Portugal, 2010–2021

Carlos Aniceto

C Aniceto[1], P Braz[1], A Machado[1], C Matias-Dias[1]
[1]Department of Epidemiology, National Institute of Health Doctor Ricardo Jorge, Lisbon, Portugal
Contact: carlos.aniceto@insa.min-saude.pt

Background: Congenital anomalies (CA) include structural/functional malformations, chromosomal anomalies, and other genetic diseases arising during intrauterine life. Although a link between socioeconomic inequalities and CA is suggested evidence in Portugal remains scarce. This study analyzed the geographic distribution of CA prevalence rate (PR) and the European Deprivation Index (EDI), and their spatial autocorrelation in mainland Portugal, using national CA registry data from 2010-2021.

Methods: Observational ecological study using cases reported to the national CA registry (2010-2021). EDI data, based on the 2011 census, were retrieved from public sources. CA prevalence by municipality was calculated using live births and fetal deaths from the National Institute of Statistics. Spatial statistical analyses evaluated geographic patterns. Two periods were considered (2010-2015 and 2016-2021), estimating: (i) Bayesian smoothed prevalence rates (PRCA) using empirical Bayes; (ii) univariate spatial clustering of PRCA using Local Moran's I; and (iii) bivariate spatial clustering of PRCA and EDI using bivariate Local Moran's I.

Results: Between 2010-2015, PRCA ranged from 17 to 513/10000 live births. Three significant high-rate clusters ($p < 0.05$) were identified in the Centro and Algarve regions. A high-high cluster ($p < 0.05$) of PRCA and EDI was detected in the Algarve. Between 2016-2021, PRCA ranged from 3 to 610/10000 live births. Two clusters of high PRCA ($p < 0.05$) were observed in Centro. Bivariate analysis revealed high-high clusters ($p < 0.05$) of PRCA and EDI in the Algarve and Norte regions.

Conclusions: A consistent concentration of high CA prevalence associated with greater socioeconomic deprivation was found in the Algarve region across both periods. Spatial autocorrelation methods proved effective in identifying and comparing geographic patterns of CA and EDI. Findings highlight the need for public health interventions targeting vulnerable populations and CA prevention.

Key messages:

- Spatial analysis revealed persistent clusters of congenital anomalies in socioeconomic deprived areas.
- Findings may support public health strategies to prevent congenital anomalies and reduce social inequality impacts.