

**Abstract Objective** Identifying the spatial patterns of childhood overweight/obesity (OW/OB) can help to guide resource allocation for preventive intervention in China. This study aims to estimate rates of childhood OW/OB across counties within Shandong Province, using geographic techniques to identify sex-specific spatial patterns of childhood OW/OB as well as the presence of spatial clusters. **Design** Cross-sectional study. **Setting** Shandong Province in China. **Participants and methods** Data on 6216076 children and adolescents aged 7–18 years from the Primary and Secondary Schoolchildren Physical Examination Database for Shandong Province were used in this study. Spatial patterns of sex-specific prevalence of childhood OW/OB were mapped. Global autocorrelation statistic (Moran's I) and the Local Indicator of Spatial Association (LISA) were applied to assess the degree of spatial autocorrelation. **Results** The overall prevalence of childhood OW/OB in Shandong province were 15.05% and 9.23%, respectively. Maps of the sex-specific prevalence of OW/OB demonstrate a marked geographical variation of childhood OW/OB in different regions. Prevalence of childhood OW/OB had a significant positive spatial autocorrelation among both boys and girls. LISA analysis identified significant clusters (or 'hot spots') of childhood OW/OB in the eastern coastal region, central region and southwestern region. **Conclusions** The prevalence of childhood OW/OB is highly spatially clustered. Geographically focused appropriate intervention should be introduced in current childhood OW/OB prevention and control strategy.