

# Municipal Food Insecurity is associated with stunting in children younger than 5 years of age in Brazil



## years of age in Brazil

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## Food insecurity impacts child younger than 5 years old development in Brazil, with consequences such as stunting

### BACKGROUND

Food Insecurity can be understood as a product from its context which is crossed by vulnerabilities unevenly distributed through space (specially in populous states such as São Paulo, Brazil - with 645 municipalities and 44.420.459 habitants) which limit access to food in sufficient quantity and quality. From this hindered access, an impact on child development can be observed. Thus, the objective of this study was to evaluate the association between food insecurity and stunting in children under 5 years of age in Brazilian municipalities in 2018.

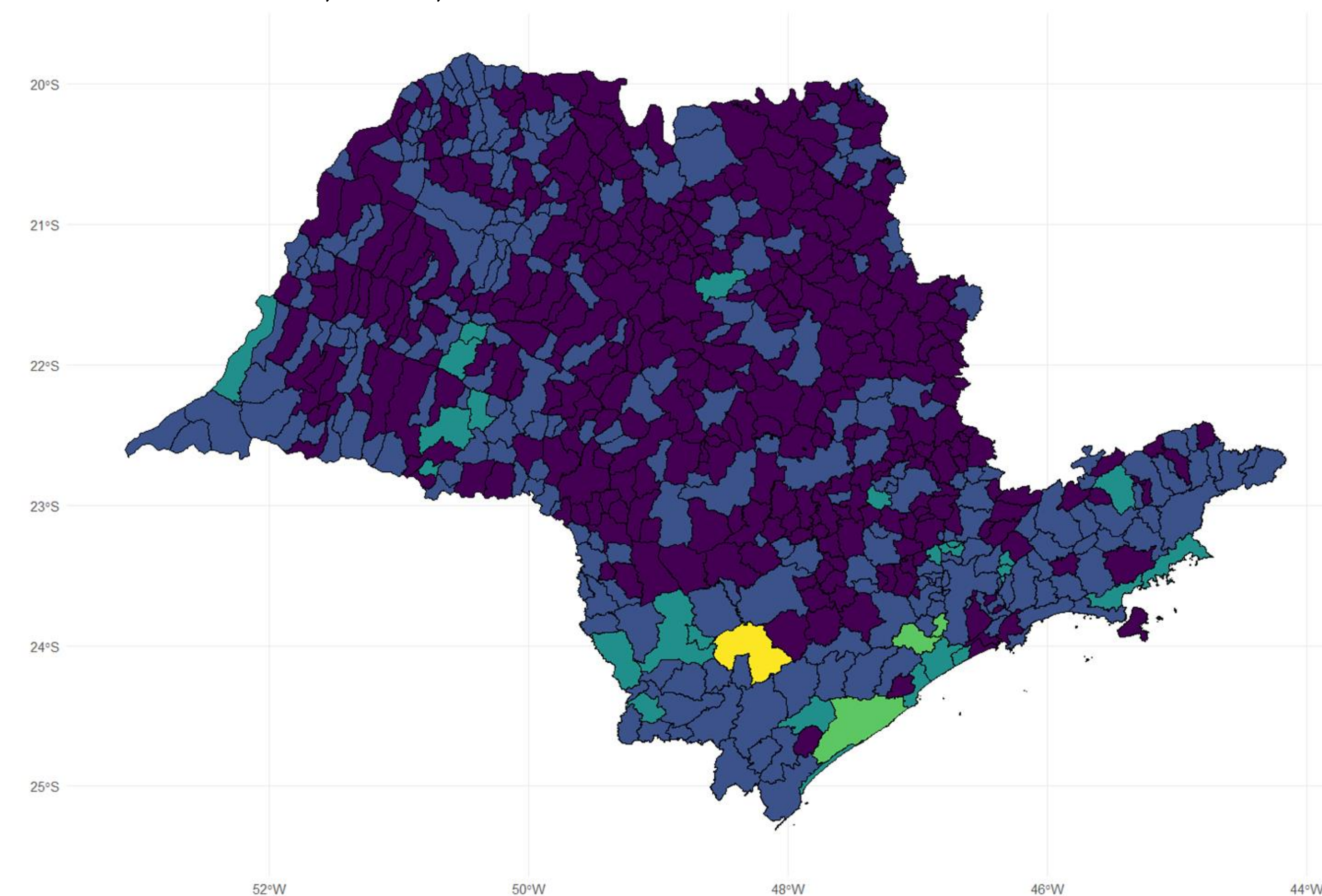
### METHODS

Data from 456 municipalities in the state of São Paulo, Brazil, from 2018 were used. A spatial regression model was used ( $p$ -value:  $\leq 0.05$ ). The dependent variables (proportion of children up to 5 years of age classified as stunting) and independent one (proportion of people in Food Insecurity) were obtained from public databases of a food and nutritional surveillance system (SISVAN) and a registry of people in vulnerable situations (CadÚnico), respectively, both from the Federal Government of Brazil. Pearson's and Spearman's correlation coefficients were used to analyze the correlation between the state's Food Insecurity situation and the total proportion of those registered in CadÚnico.

### RESULTS

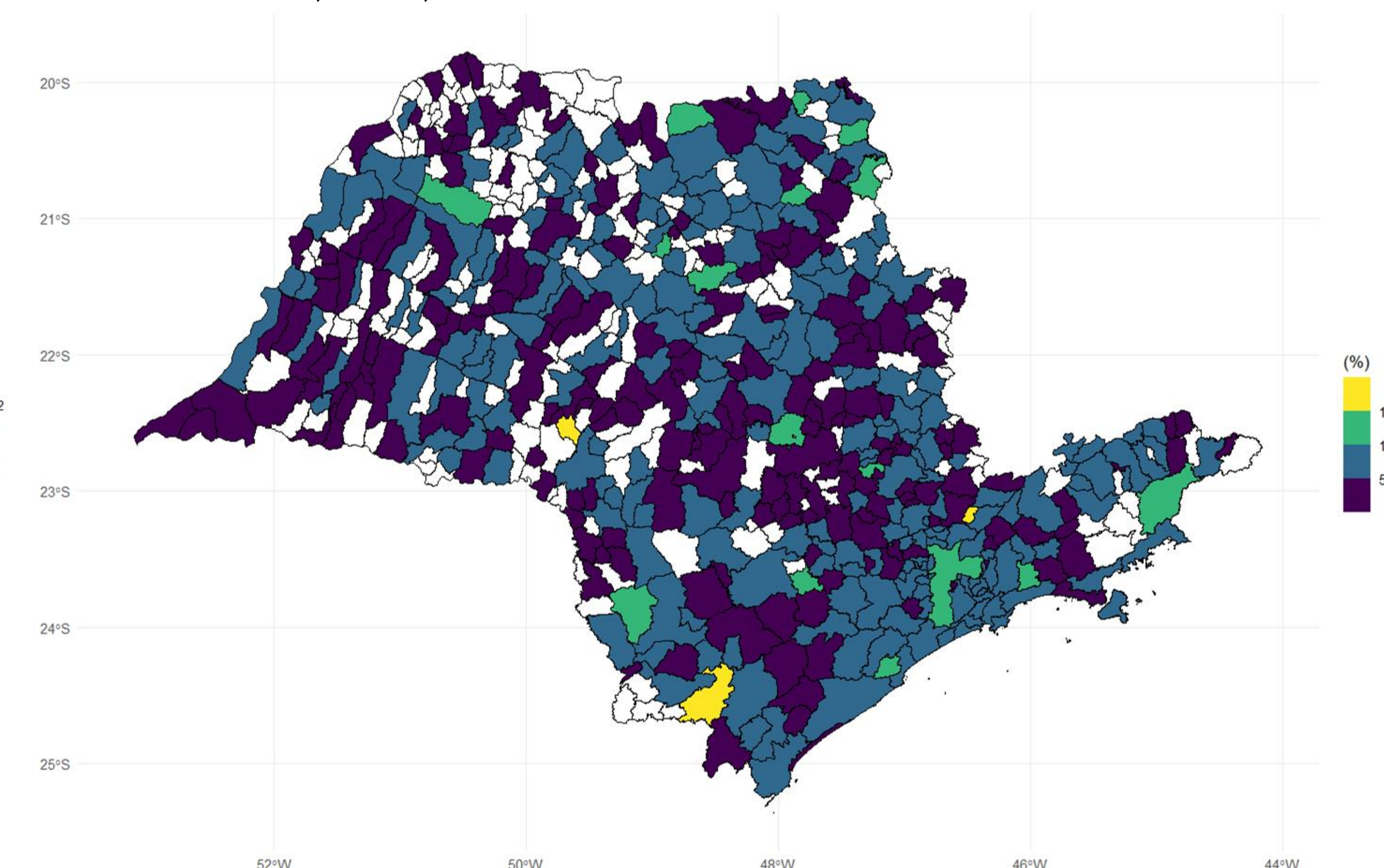
High correlation coefficients was found between the total proportion of people enrolled in the registry of people in vulnerable situations in the set of municipalities of São Paulo and the situation of total Food Insecurity ( $r = 0.85$ ), mild ( $r = 0.85$ ), moderate ( $r = 0.80$ ) and severe ( $r = 0.70$ ). And being in Food Insecurity was associated with short stature-for-age in children younger than 5 years ( $0.10$ ,  $p = 0.02$ ).

**Fig. 1** Proportion of people with an income of up to 85.00 BRL, by municipality in the state of São Paulo, Brazil, 2018



Data source: Brazilian register of families living in poverty and extreme poverty (CADUNICO).

**Fig. 2** Proportion of children up to 5 years of age with stunting, by municipalities in the state of São Paulo, Brazil, 2018



Data source: Food and Nutrition Surveillance System (SISVAN).

\*Municipalities without data are shown in white.

### CONCLUSIONS

Food insecurity directly and indirectly affects child development, with devastating social and physical consequences. Adequate access to healthy and adequate food, therefore, is essential to mitigate the effects of food insecurity on children. This research, when added to the inclusion of other important health indicators, contributes to decision-making in the face of this problem.

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No conflict of interest

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