National Convention on Statistics

Spatial Clusters of Double Burden of Under-five Malnutrition in the Province of Marinduque

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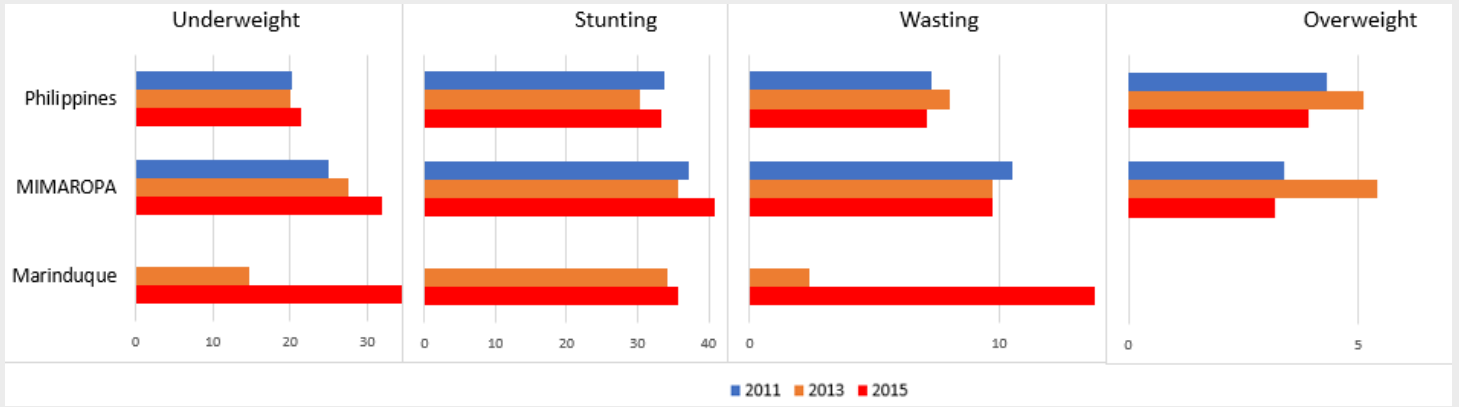
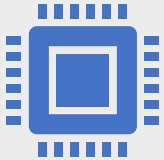
Marinduque among the provinces with worsening forms of malnutrition in recent years



Understanding malnutrition in all possible aspects is vital in decreasing its prevalence.



In the past two decades, advancements in technology have made the collection of spatial data cheap and readily available.

Spatial analysis offers a new perspective in understanding the problem in the context of place or space.

Detection of local spatial clusters is a commonly used spatial analysis

Objective

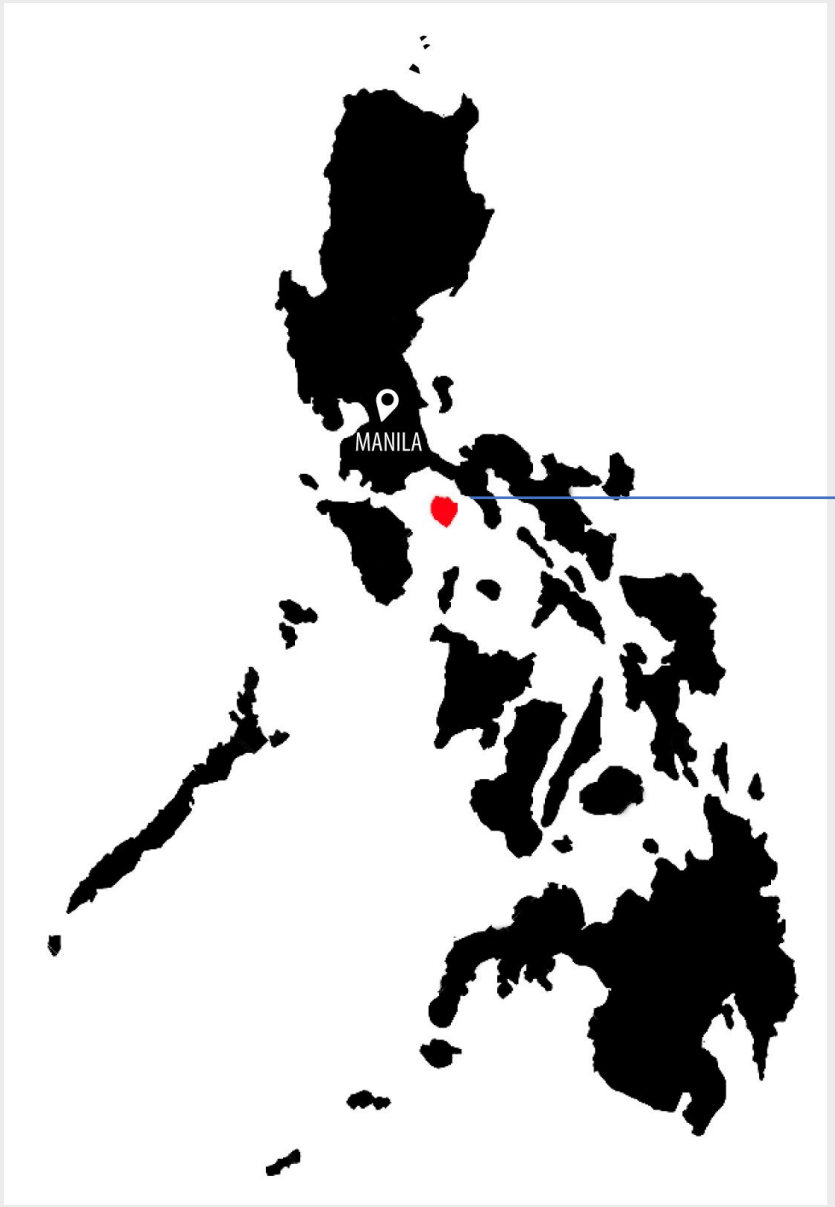
To determine the physical location and size of clusters with simultaneously high relative risk of under and overweight among malnourished children under-five years old in the province, stratified by age and membership to 4Ps.

Significance of the Study

Fill the knowledge gap and contribute to the existing pool of knowledge

Use of geographic targeting based on some measure of risk

Facilitate development of policies and programmes tailored on specific forms of malnutrition



2014-2016 Community-based Monitoring System (CBMS) data

Province of Marinduque (6 municipalities with 218 barangays)

1,084 malnourished children aged 0-59 months, grouped by age and membership to 4Ps

Objective	Method	Model	Outcome	Software
Determine clusters with simultaneously high relative risk of types of malnutrition in the province, By age (0-24 months, 25-59 months) 4Ps membership (Member, Non-member)	Kulldorff's elliptical spatial scan statistic	Multinomial	Types of Malnutrition (e.g., Overweight, Moderately underweight, and Severely underweight)	Stata v12, SaTScan 9.6, and QGIS 2.18

- Children 0-24 months old within Cluster 1 had high risk of overweight (*RR=4.5*) and severely underweight (*RR=1.7*) at the same time.

- Non-members of 4Ps had 4.5 times higher risk of overweight and had 1.1 times higher risk of severely underweight at the same time

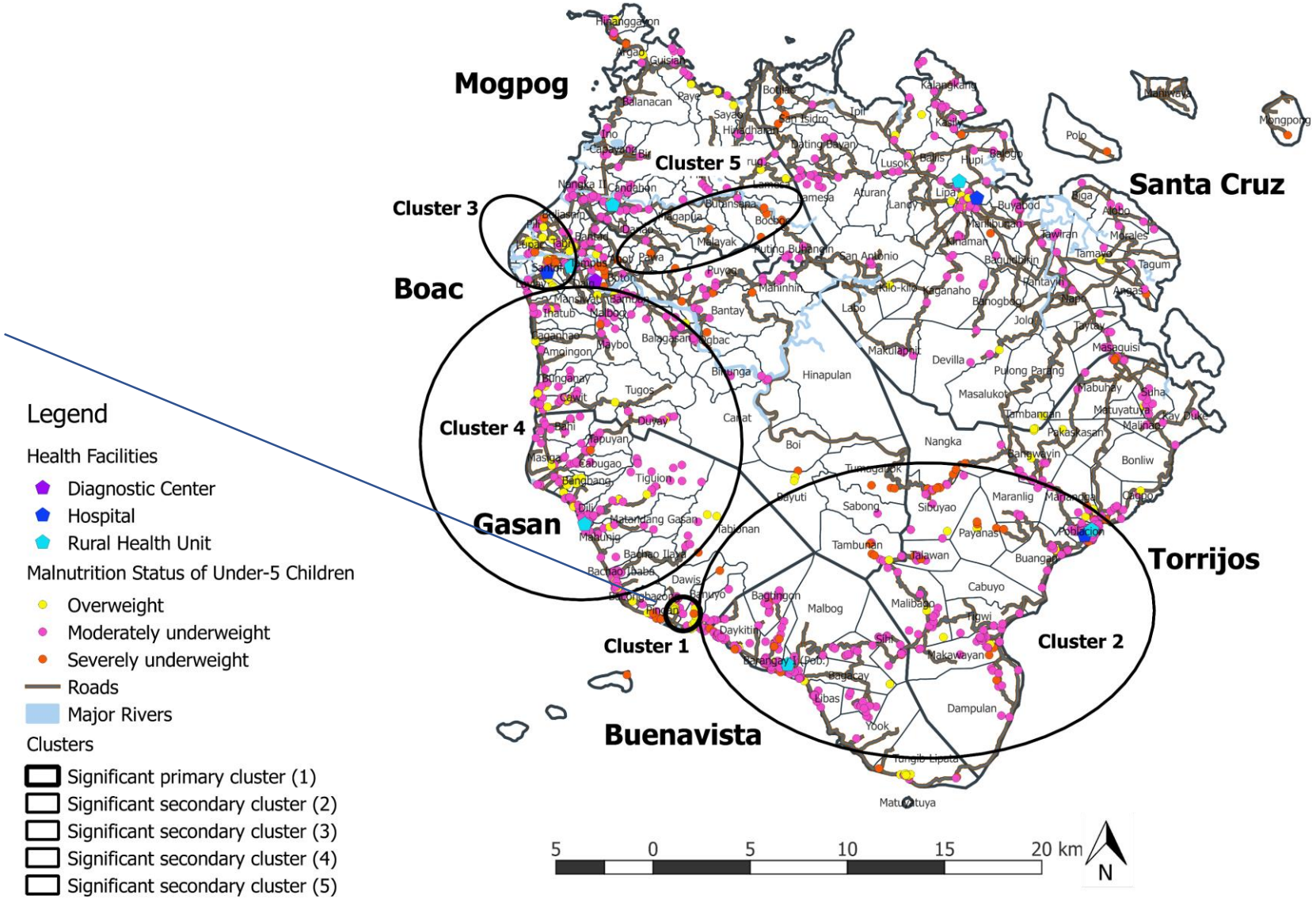
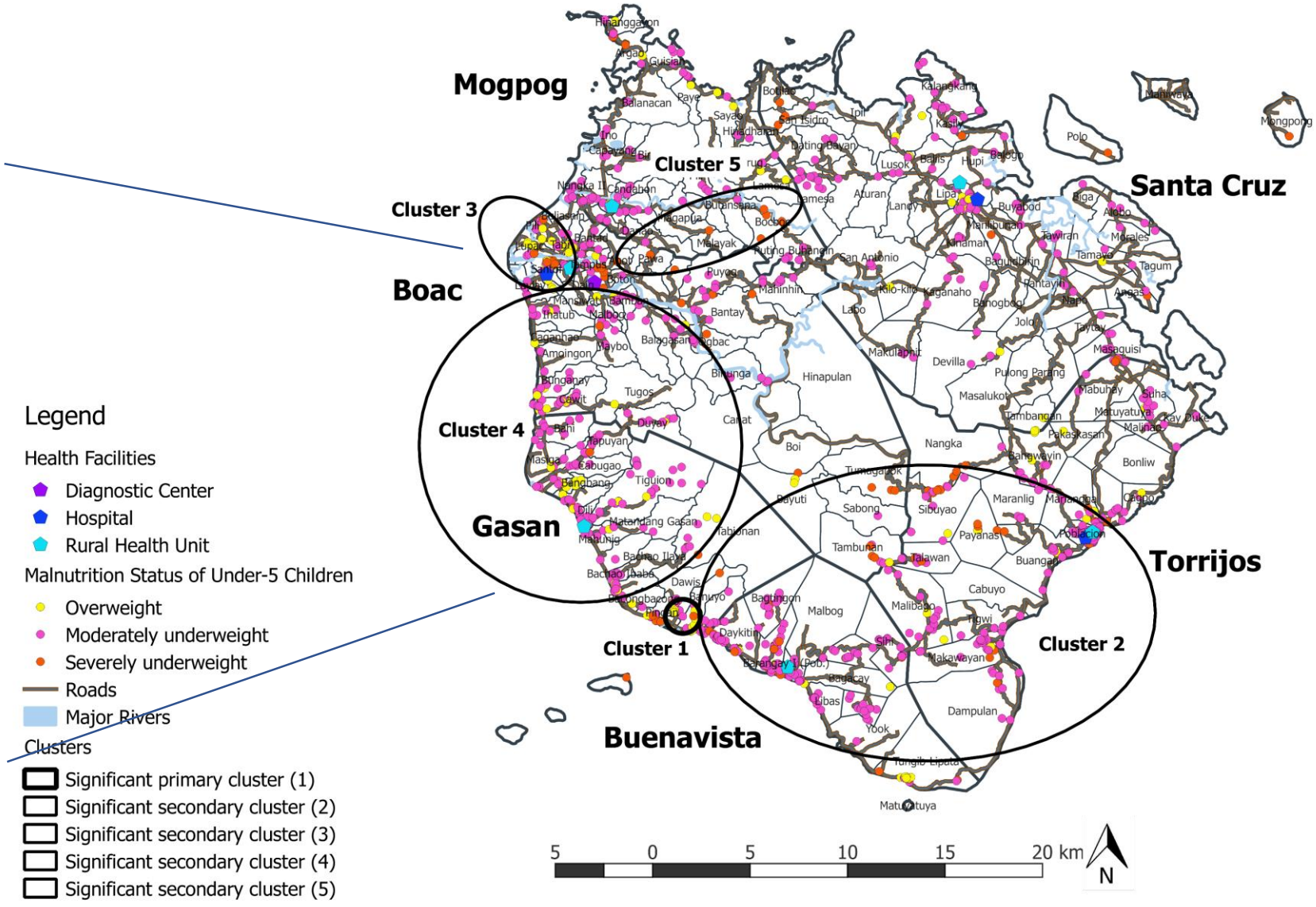


Figure 1. Location of clusters of type of malnutrition among malnourished under-five years old children stratified by age and 4Ps membership status, Province of Marinduque, 2014–2016

- Within Cluster 3, children 25-59 months old had high risk of overweight (*RR=3.6*) and severely underweight (*RR=1.9*) at the same time.
- Across membership to 4Ps, children had at least 3 times higher risk of overweight and at least 1.4 times higher risk of severely underweight.
- Within Cluster 4, children 0-24 months old and non-member of 4Ps had marginal risk of being overweight and moderately underweight.



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Conclusion/ Recommendations

- Double burden of malnutrition existed within communities in the Province of Marinduque, with differences in the pattern of risk of malnutrition across clusters and subpopulations, suggesting underlying local causes at work that warrant further investigation.
- The detection of significant clusters reinforces the need to investigate the spatial perspective of double burden malnutrition to uncover variations even in small geographic areas.
- It also has important policy implication as it can support the use of geographic targeting as well as targeting of specific populations based on some measure of risk, as a way to maximize limited government resources