**Statistical Analysis Plan**

**Job:** LHS0005

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**Aim:**

Estimate the smoothed probabilities of overweight and obesity by region and variables of interest in Honduras, using ENDESA 2019 data.

**Exclusion/Inclusion criteria:**

**Excluded:**

* Pregnant (don’t know/no response) women (n = 978)
* No response (n=1562)
* Height and weight missing.

**Decisions:**

**09/25/24:**

* Pregnant women (and those that do not know) excluded from analysis.
* There are 1562 women without response (exclude them)
* Use WOMEN\_AGE\_C4 to reduce the number of categories in the spatial analysis.
* We will model probability of overweight instead of relative risk (log link) to avoid fitting issues

**Deliverables:**

**11/01/25:**

* Prediction maps with direct estimates using design-based approach (11/01/2025)
  + REGION, WOMEN\_AGE\_C4
  + REGION, WOMEN\_EDUCATION\_C4
  + REGION, WEALTH INDEX

**Methods:**

**Design-based Direct estimates of the probability of overweight/obesity**

For estimating the probability of overweight/obesity for the area/region k incorporating the sampling design, we used the survey package in R. The following is the model we considered:

\log{p\_k / 1- p\_k} = \beta\_0 + ..

**Small area estimation method**