

Dr. Kelly Roussi (Researcher, Proofreader/ Editor)

Checkley *et al.* investigated how changing the fuel source used for cooking during and following pregnancy, as a method to reduce household air pollution, affects the rates of stunting in infants during the first year of life.

Objective

To determine whether replacing biomass fuel with liquefied petroleum gas (LPG) as cooking fuel can reduce the risk of stunting in infants



Intervention

Liquefied petroleum gas



Comparator

Gas or biomass

Randomised controlled trial

Women at 9 to 20 weeks' gestation



Randomisation

LPG
(1593 women)



Data collection



Primary outcome:
Stunting at 12 months

Secondary outcomes:

- 1) Length-for-age at 12 months
- 2) Severe stunting at 12 months
- 3) Stunting at 6 months

Biomass
(1607 women)



12 months post-partum

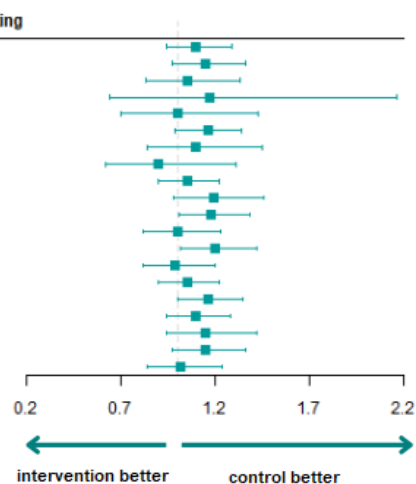


KEY RESULTS

- Measured reduction in the levels of **fine particulate matter**.
- **No impact** of the above reduction on **rates of stunting** at 12 months in most subgroups. Where a difference was observed, it **favoured the control group**.
- Significantly **increased rates of severe stunting** (≥ 3 SDs below median) at 12 months (RR = 1.36, 95% CI = 1.02 to 1.82). Again, this **favoured the control group**.

Subgroup Relative Risk of stunting

Subgroup	Relative Risk of stunting
Overall	1.1
Country - Guatemala	1.15
Country - India	1.05
Country - Peru	1.17
Country - Rwanda	1
Maternal height - <151 cm	1.16
Maternal height - 151 to 154 cm	1.1
Maternal height - ≥ 155 cm	0.9
Infant sex - Male	1.05
Infant sex - Female	1.19
Socioeconomic status index <Median	1.18
Socioeconomic status index \geq Median	1
Food insecurity <Median	1.2
Food insecurity \geq Median	0.99
Gestation at time of intervention <18 wk	1.05
Gestation at time of intervention ≥ 18 wk	1.16
Small size for gestational age <-1.28 z scores	1.1
Small size for gestational age ≥ -1.28 z scores	1.15
Exclusive breast-feeding - No	1.15
Exclusive breast-feeding - Yes	1.02



Strongest points of the study:

- The study recruited a high **number of participants** from four different countries, which increases confidence in the validity of the results presented.
- The authors **did not rely on a single measurement of a single variable** as a metric of growth stunting.

Main limitations of the study:

The change in fuel source used for cooking might have different effects on the household, and consequently, on child growth and stunting rates, from the ones considered in this study. For example:

- The **food cooked in the new stove** might differ in some households, which might affect child growth.
- The study only measured pollution from fine particulate matter, but LPG stoves may emit **other pollutants** capable of affecting child growth.

Reference

