

## **Title:** Maternal characteristics associated with birth length in a sample of Argentinian women

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### **Background and Objectives:**

Prenatal growth has been related to risk factors for chronic disease in adult life, specifically, small body size at birth was associated with elevated blood pressure, insulin resistance and metabolic syndrome. The knowledge of maternal characteristics associated with birth length can be useful information for programming public health interventions focusing in prenatal care. The objective of this research was to evaluate the relationship between maternal nutritional status and birth length in a sample of Argentinian women.

### **Methods:**

A sample of 760 healthy pregnant women was selected from antenatal clinics in six different urban regions in Argentina. Height and initial weight were determined in the first control (before 12 weeks of gestation), BMI and weight increments were calculated in the last prenatal control. Infant birth weight, height and gestational age were recorded from the neonate clinical history. Descriptive statistics and adjusted lineal regression models were fitted using R-program, version 3.1.0.

### **Results:**

Most women were primiparous (43.9%) and attended the public health sector (56.6%). Maternal and neonatal characteristics were: (Mean  $\pm$  SD): age (years)  $26.6 \pm 5.7$ ; maternal height (m)  $1.58 \pm 0.06$ ; initial BMI ( $\text{kg}/\text{m}^2$ )  $24.08 \pm 4.5$ ; BMI increment ( $\text{kg}/\text{m}^2$ )  $4.7 \pm 0.4$ ; birth weight (g)  $3284 \pm 509$ ; gestational age (weeks)  $38.7 \pm 1.7$ ; length (cm)  $48.8 \pm 2.4$ . According to gestational age, birth length was  $44.9 \pm 3.9$  cm (mean  $\pm$  SD) in preterm and  $49.1 \pm 2.0$  cm in term newborns.

After adjusting for gestational age, gender of the newborn, mother's age, province, type of care and income level, variables associated with length at birth were parity, maternal height, BMI at the beginning of pregnancy, and BMI increment (Table 1).

**Table 1: Maternal variables associated with length at birth**

Variable	Coefficient	Std Error	t	P - Value
Parity	0,137	0,067	2,029	0,043
Maternal height	2,881	1,171	2,460	0,014
Initial BMI	0,065	0,015	4,093	0,000
BMI increment	0,101	0,038	2,604	0,009

### **Conclusions:**

Although parity and maternal height can not be influenced by health interventions, the relationship of maternal BMI and its increment during pregnancy with length at birth emphasize the need to recognize prenatal care as a valuable opportunity to promote adequate prenatal growth.

### **Keywords:**

prenatal care, pregnancy weigh gain, birth length

### **Conflict of Interest:**

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### **Further Collaborators:**

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