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## Background

Pregnant women and their fetuses are susceptible to the effects of exposure to environmental toxicants including lead, mercury and cadmium. Exposure to heavy metals such as lead, cadmium and mercury during pregnancy carries a great risk to the mother as well as the fetus. Environmental pollution and exposure of people to heavy metals cause many bad obstetric outcomes. Our aim is to demonstrate the role of cadmium (Cd), lead (Pb), mercury (Hg) in preterm labor etiology .

### Learning Objectives

The aim of our study was to measure in umbilical cord blood, at delivery, the concentration of lead (Pb), mercury (Hg) and cadmium (Cd), and evaluate the relationship between these levels and prematurity.

### Methods

Our prospective study was conducted over a period of 01 years from December 2016 to October 2017 in maternity of the region of Sidi Bel Abbes in west of Algeria.

Total mercury, lead, and cadmium concentrations were measured in 70 specimens of cord blood and correlated with demographic characteristics and pregnancy outcomes for each mother-infant pair. (laboratories CERBA, FRANCE).

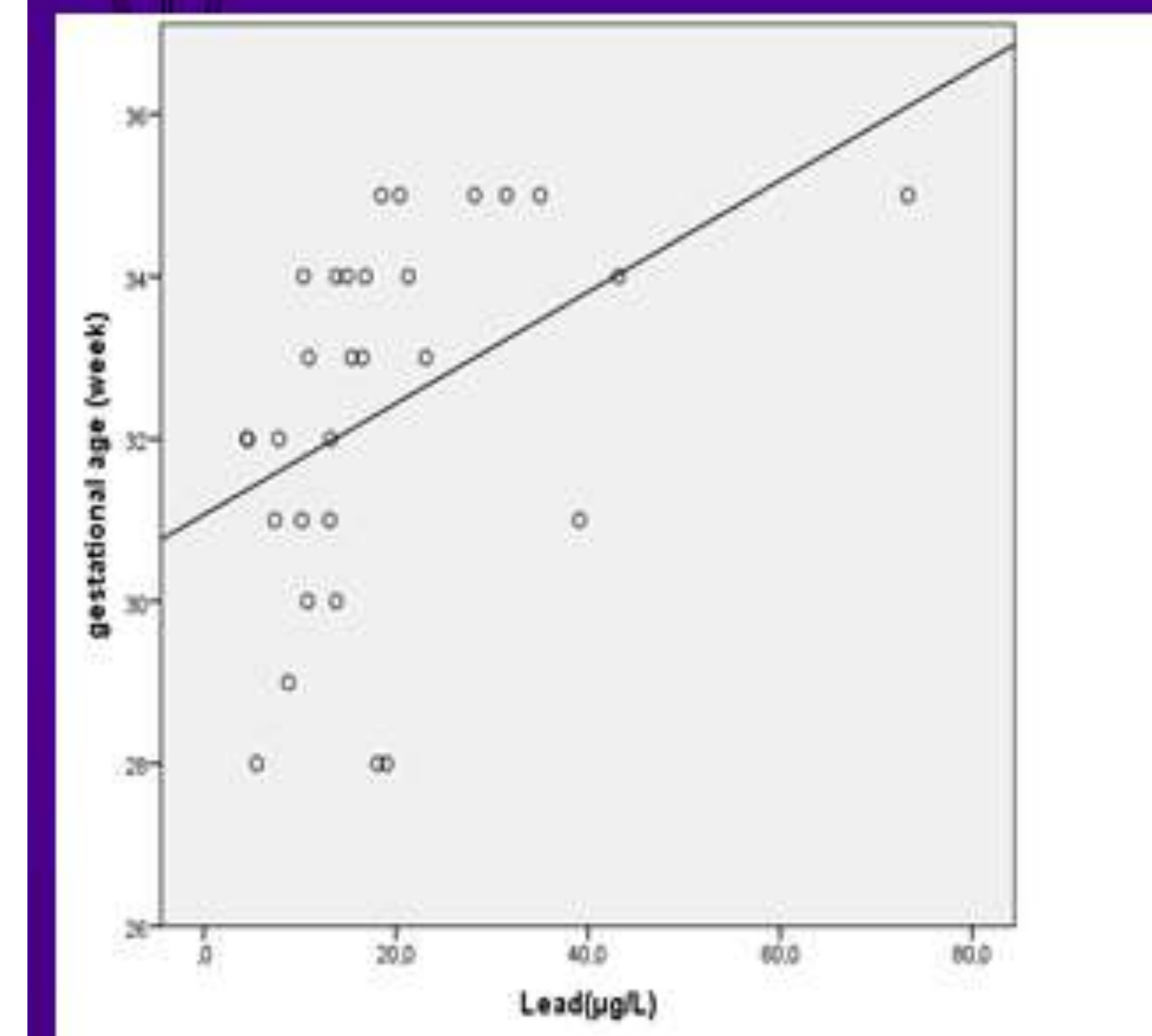
questionnaire elicited on maternal information included socio-demographic factors (maternal age, education, occupation, weight and height), obstetric history on newborn characteristics (weight, sex, gestational age, .....).

### Results

Table1. Distribution of Lead, Cadmium and mercury concentrations in cord blood

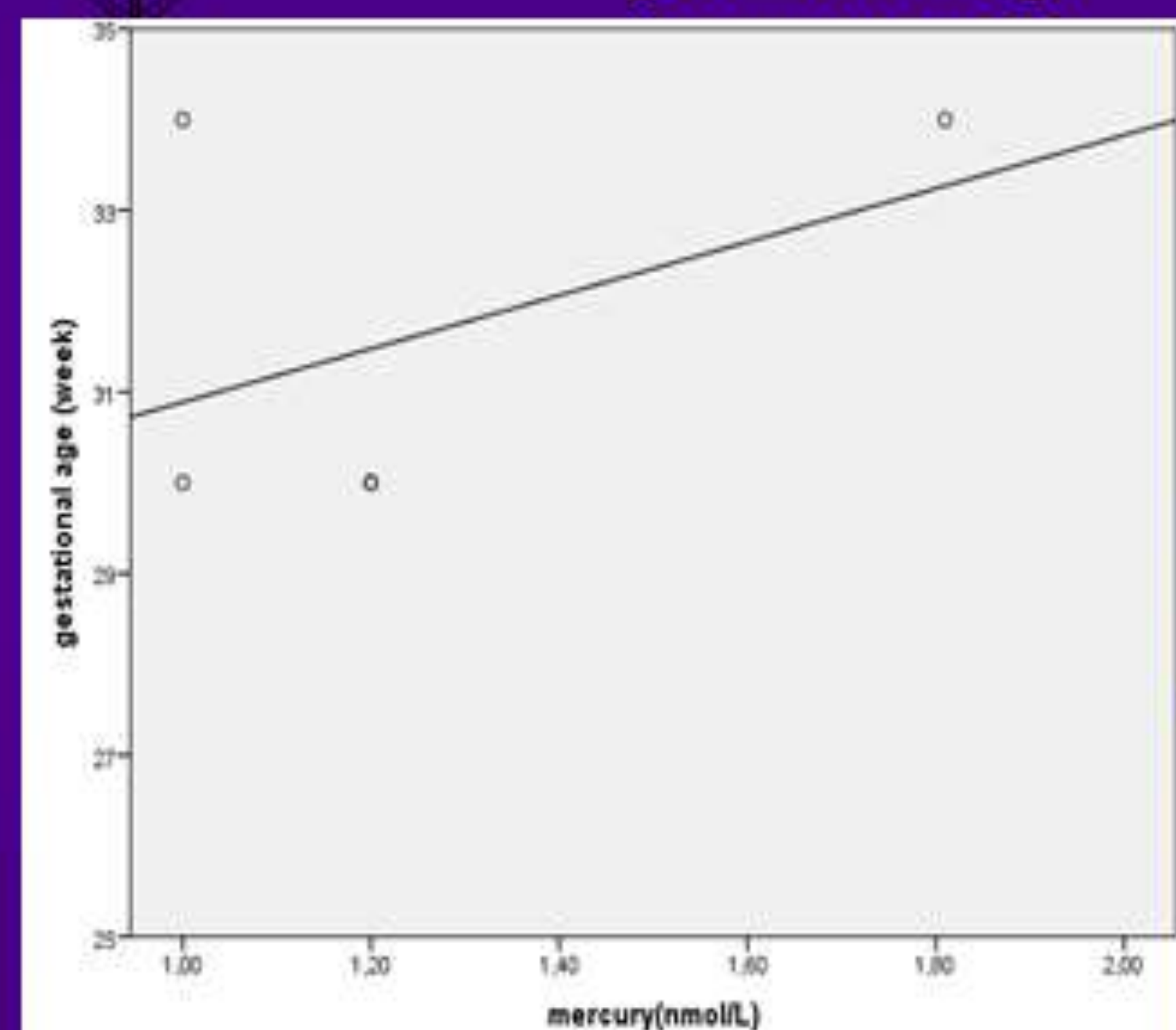
Variable	N (%)	Mean ± SD
<b>Cadmium</b> µg/L	N (30)	
(LOD) 0.2 µg/L		
<0.2 µg/L	8 (27%)	0.26±0.07µg/L
0.2 µg/L	11 (37%)	
0.3 µg/L	7 (23%)	
0.4 µg/L	4 (13%)	
<b>Lead</b>	N (30)	
(LOD)1 µg/L		
<25 µg/L	24 (80%)	18.97 ± 14.22µg/L
25-50 µg/L	5 (17%)	
>50 µg/L	1 (3%)	
<b>Mercury</b>	N(10)	
(LOD) 5nmol/L		
<5nmol/L	5 (50%)	6.20±1.64nmol/L
5-6 nmol/L	4 (40%)	

Figure 1: correlation between concentration of Cord blood Lead and gestational age



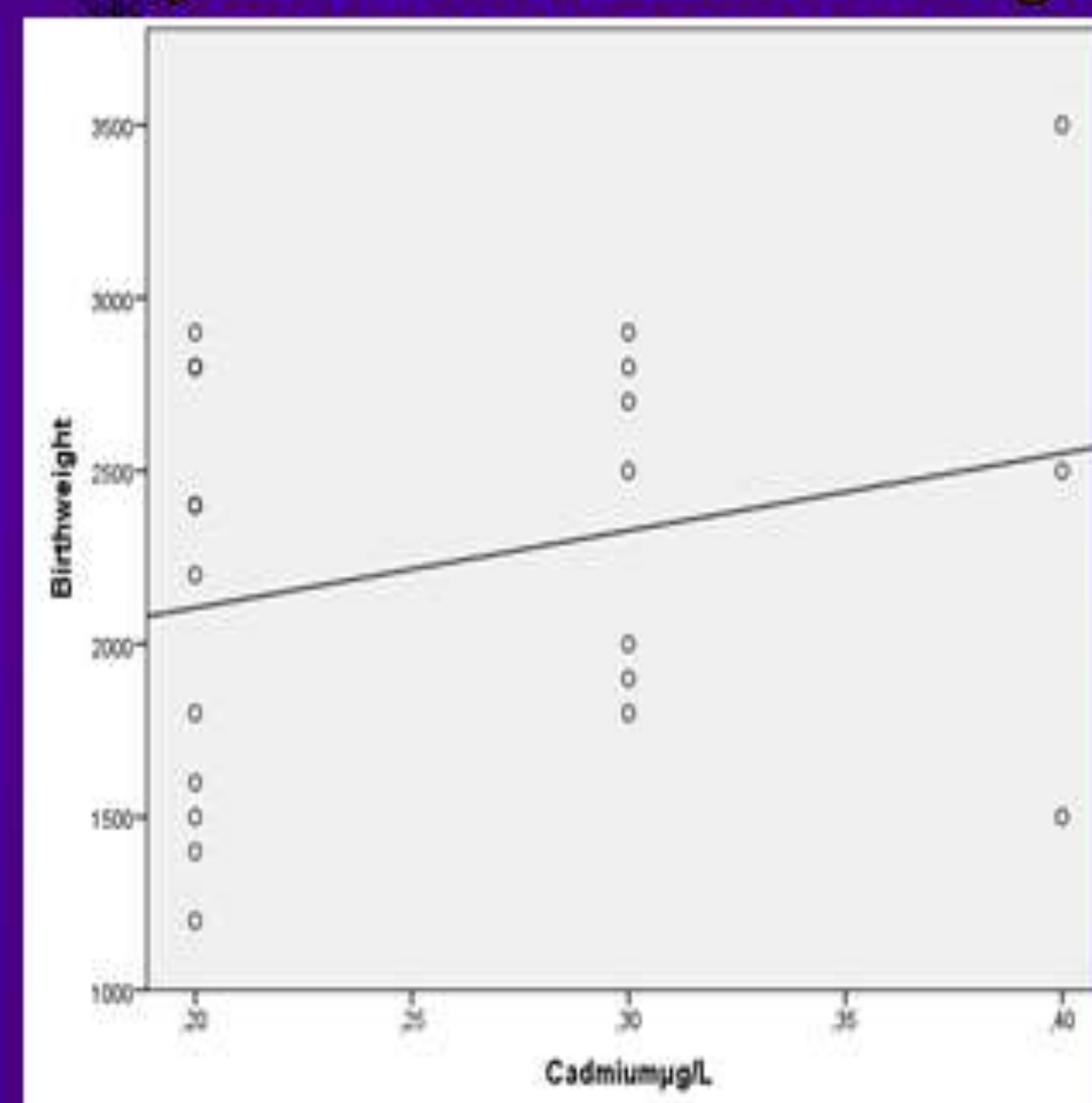
There was a highly significant direct correlation between cord lead concentrations and gestational age ( $r=0.43$ ;  $P=0.017$ )

Figure 2: correlation between concentration of Cord blood Mercury and Birth weight and gestationnel age



we found that gestational age and birth weight inversely correlated with cord mercury concentration ( $r=0.44$  and  $r=0.57$  respectively)

Figure 3: correlation between concentration of Cord blood Cadmium and gestational age



No correlation was observed between cord cadmium concentrations and gestational age.

### conclusion

This study has shown that pregnant women in this region of the country were exposed to similar levels, compared to pregnant women in industrialized countries, or even higher levels for lead.

The results show a high significant correlation between cord lead concentrations and gestational age, the rates of cadmium and mercury were inversely correlated with birth weight. Furthermore cord mercury concentration was correlated with small gestational age

Further research incorporating larger samples is needed to investigate the effects of pregnant women's exposure to heavy metals - particularly Pb, Cd, Hg and its impact on small gestational age.

*This study has shown that pregnant women in this region of the country were exposed to high levels for heavy metals which need an intervention.*

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