

Supplemental Material

Maternal hair segments reveal metal(loid) levels over the course of pregnancy: a preliminary study in Southern China

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22 **Table S1.** Characteristics of the study population (n = 41)

Characteristics	Mean $\pm$ SD	25th	50th	75th	%
Maternal age (years)	29.7 $\pm$ 4.0	27.0	30.0	32.0	
Pre-pregnancy BMI (kg/m²)	20.9 $\pm$ 2.63	19.3	21.1	22.5	
Pregnancy weight gain (kg)	13.2 $\pm$ 3.79	10.6	13.0	15.9	
Gestational Age (days)	269 $\pm$ 10.4	263	271	276	
Maternal education					
College degree or below	18				43.9
Minimum bachelor	23				56.1
Parity					
1	23				56.1
>1	18				43.9
Infant gender					
Male	26				63.4
Female	15				36.6
Aquatic products consumption					
0-3 days/week	34				82.9
4-7 days/week	7				17.1
Drinking water					
Tap water	19				46.3
Purified water	22				53.7
Folic acid supplementation					
Before pregnancy	17				41.5
After pregnancy	15				36.6
Passive smoking during pregnancy					
No	34				82.9
Yes	7				17.1

23 Abbreviations: BMI, Body Mass Index.

24 **Table S2.** Limit of quantification (LOQ), quantification linear R², and objective of
 25 internal standards for metal(loid)s

Metal(loid)s	Linear R ²	Internal Standard ^a	LOQ (µg/g)	Accuracy (%) ^b
Zinc (Zn)	0.999	Scandium (Sc)	0.004	93.4
Selenium (Se)	0.999	Germanium (Ge)	0.379	110
Manganese (Mn)	0.999	Scandium (Sc)	0.009	88.9
Copper (Cu)	0.999	Scandium (Sc)	0.001	86.9
Arsenic (As)	0.999	Germanium (Ge)	0.031	101
Cadmium (Cd)	0.999	Indium (In)	0.001	113
Antimony (Sb)	0.999	Indium (In)	0.007	108
Lead (Pb)	0.999	Germanium (Ge)	0.012	83.3
Vanadium (V)	0.999	Scandium (Sc)	0.004	102
Cobalt (Co)	0.999	Germanium (Ge)	0.001	96.7

26 ^a The accuracy of metal(loid)s in the certified reference material (GBW07601a).

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28 **Table S3.** Concentrations of metal(loid)s in paired maternal urine and household dust
 29 samples*.

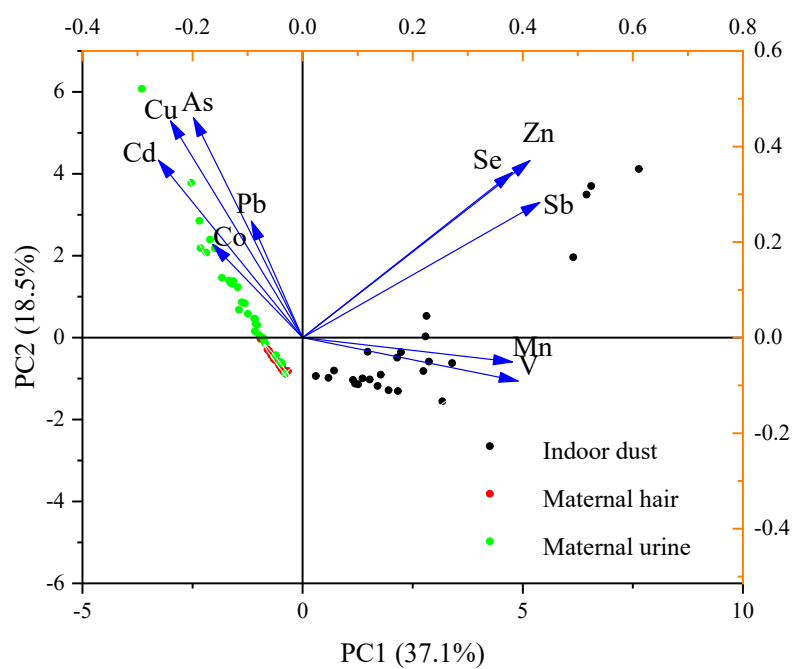
Metal(loid)s	Maternal urine (n=33, µg/L)			Household dust (n=26, µg/g)		
	Mean	Median	Range	Mean	Median	Range
Zn	438	351	84.7-899	7490	2180	273-31400
Cu	31.8	14.6	0.078-154	0.078	0.059	0.006-0.319
Se	17.2	12.5	0.227-92.6	1.95	1.70	0.796-3.18
Mn	2.76	2.58	0.024-9.36	456	414	131-1110
V	0.316	0.213	0.003-1.81	23.9	23.0	8.88-41.6
Co	0.750	0.390	0.002-4.61	9.66	8.24	2.78-23.3
As	27.0	15.8	1.26-214	15.6	11.1	3.73-21.9
Cd	0.611	0.510	0.030-2.41	2.21	1.62	0.620-7.86
Sb	0.243	0.043	0.003-3.97	8.78	8.80	2.90-19.7
Pb	14.9	4.14	1.41-325	159	96.3	2.27-592

30 * The paired maternal urine and household dust samples were collected in the third
 31 trimester of pregnancy.

32 **Table S4.** Rotated factor loadings and similarities for specific gravity of each metal in
 33 principal component analysis.

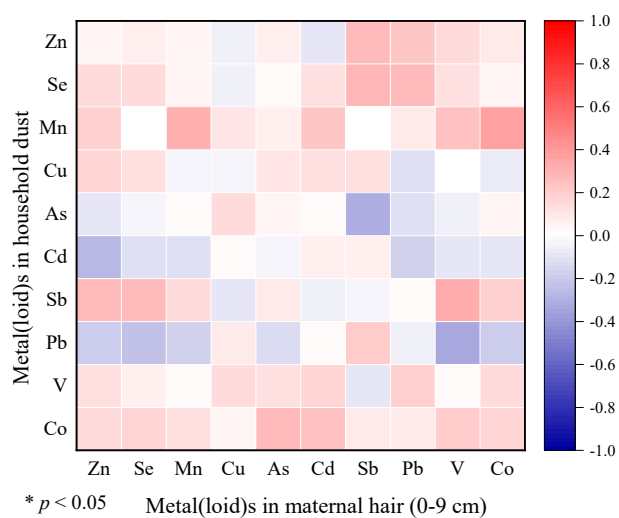
Metal(loid)s	PC1	PC2	PC3	PC4
Zn	-0.041	0.190	-0.054	-0.724
Se	0.151	0.079	0.404	0.418
Mn	0.518	-0.144	0.031	-0.176
Cu	0.142	-0.414	-0.280	0.392
As	0.344	0.160	0.449	-0.063
Cd	0.174	0.510	-0.485	0.220
Sb	-0.013	0.374	0.485	0.144
Pb	0.305	0.525	-0.278	0.090
V	0.453	-0.168	-0.066	-0.016
Co	0.491	-0.191	0.022	-0.188
Eigenvalue	3.05	1.49	1.29	1.15
Total variance (%)	30.5	14.9	12.9	11.5
Cumulative variance (%)	30.5	45.4	58.3	69.9

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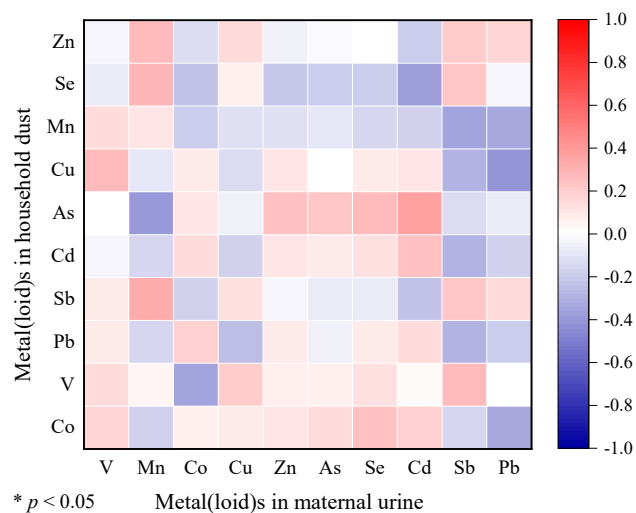


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 36 **Figure S1.** Principal component analysis results based on the metal(loid) levels of
 37 paired maternal hair (0-9 cm), maternal urine (collected in third-trimester-of-
 38 pregnancy), and household dust samples. The figure legends represent the factor
 39 loadings (the black axis) and factor scores (the yellow axis).

(A)



(B)



40 **Figure S2.** Pearson correlations of log-transformed metal concentrations in household
41 dust and 9-cm-maternal hair (A) or urine (B). Positive correlations are indicated in red
42 and negative correlations in blue.

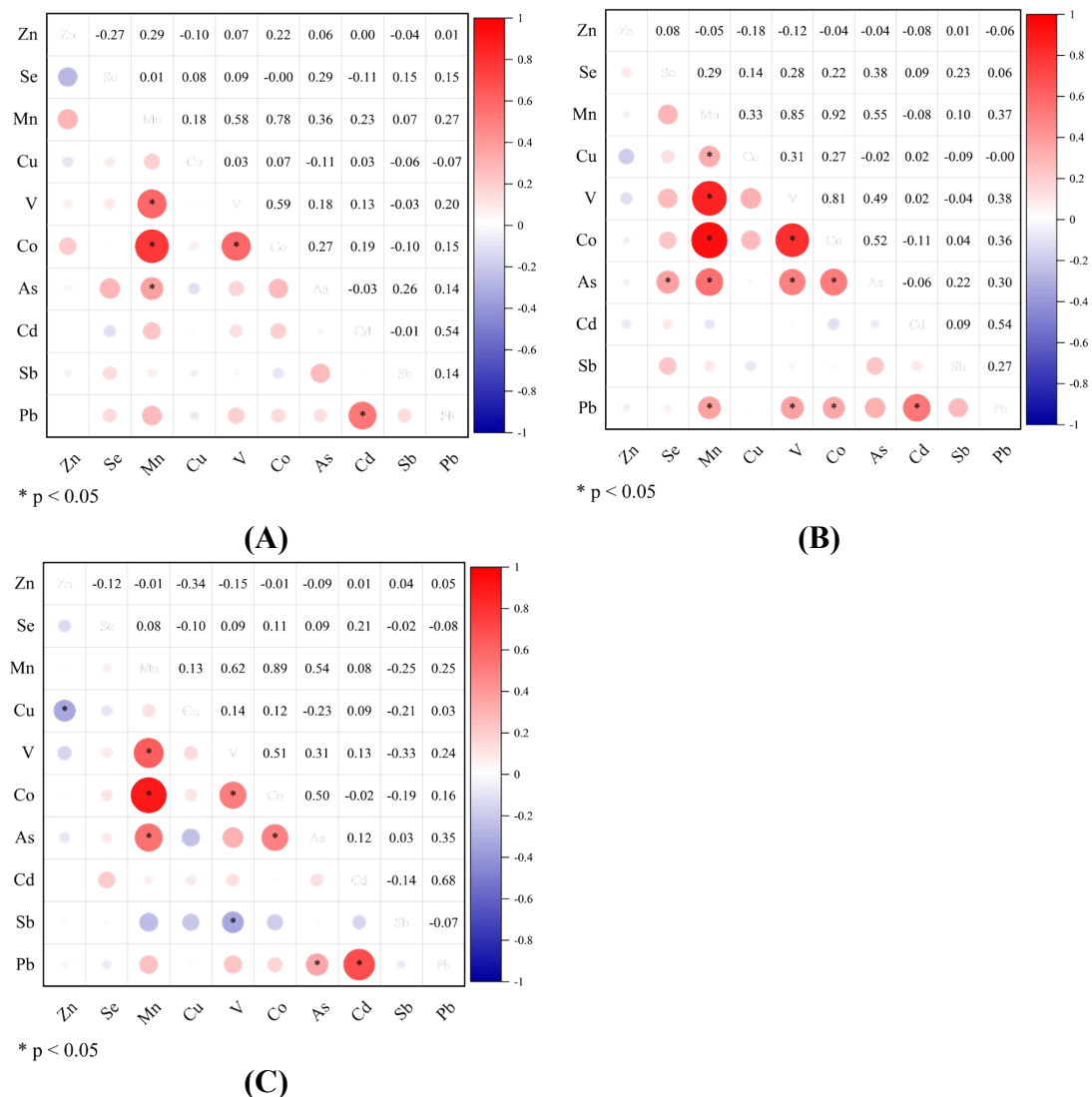
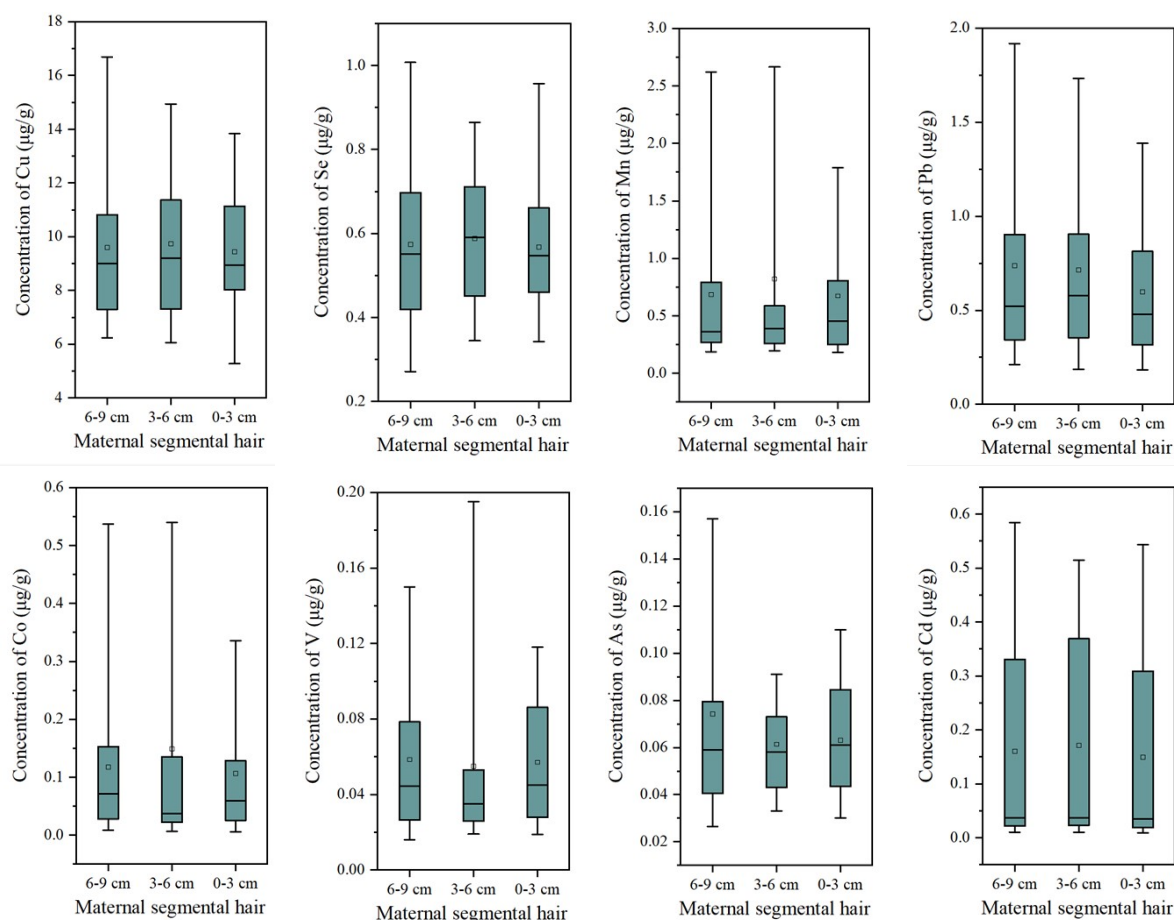


Figure S3. Pearson correlations of log-transformed metal concentrations in 6-9 cm hair segment (A), 3-6 cm hair segment (B), and 0-3 cm hair segment (C). Positive correlations are indicated in red and negative correlations in blue.



46 **Figure S4.** Box plots of metal(loid) concentrations in each maternal hair segment. The
 47 upper and lower bounds of the boxes indicate the 75th and 25th percentiles, respectively;
 48 the horizontal lines within the boxes indicate median values; the upper and lower limits
 49 of the whiskers indicate the 95th and 5th percentiles, respectively.
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