

Associations of Serum Cu, Zn and Se with Chronic Respiratory Diseases in the American Adults: Data from NHANES 2013–2016 and a Bidirectional Mendelian Randomization Analysis

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SUPPLEMENTARY TABLES

Table 1: Characteristics of participants across NHANES 2013–2016 cycles.

	Kind	Year		Total	p
		2013-2014	2015-2016		
Selenium category	Below 122.2	440	489	929	<0.001
		30.70%	35.60%	33.10%	
	122.2-135.4	454	475	929	
		31.70%	34.60%	33.10%	
	135.4 above	539	410	949	
		37.60%	29.80%	33.80%	
Zinc category	Below 73.700	461	466	927	0.617

		32.20%	33.90%	33.00%	
	73.700-86.396	478	447	925	
		33.40%	32.50%	33.00%	
	86.396 above	494	461	955	
		34.50%	33.60%	34.00%	
Copper category	Below 105.0	464	464	928	0.687
		32.40%	33.80%	33.10%	
	105.0-126.4	473	452	925	
		33.00%	32.90%	33.00%	
	126.4 above	496	458	954	
		34.60%	33.30%	34.00%	
Emphysema	No	1405	1340	2745	0.348
		98.00%	97.50%	97.80%	
	Yes	28	34	62	
		2.00%	2.50%	2.20%	
Tracheitis	No	1348	1306	2654	0.252
		94.10%	95.10%	94.50%	
	Yes	85	68	153	
		5.90%	4.90%	5.50%	
COPD	No	1382	1334	2716	0.333
		96.40%	97.10%	96.80%	
	Yes	51	40	91	
		3.60%	2.90%	3.20%	
Asthma	No	1196	1171	2367	0.199
		83.50%	85.20%	84.30%	
	Yes	237	203	440	
		16.50%	14.80%	15.70%	

Table 2: Associations of serum trace metals with CRDs in American adults.

Characteristics	Kind	Model 1		Model 2		Model 3	
		or	95% CI	or	95% CI	or	95% CI
Emphysema	Copper_category0	Ref	/	Ref	/	Ref	/
	Copper_category1	2.03	0.89-4.93	1.78	0.77-4.38	1.67	0.71-4.14
	Copper_category2	4.88	2.22-11.67	4.22	1.89-10.25	3.83	1.70-9.36
	Zinc_category0	Ref	/	Ref	/	Ref	/
	Zinc_category1	0.74	0.35-1.53	0.65	0.31-1.36	0.63	0.30-1.32
	Zinc_category2	1.65	0.85-3.26	1.37	0.70-2.74	1.36	0.69-2.74
	Selenium_category0	Ref	/	Ref	/	Ref	/
	Selenium_category1	1	0.50-2.01	1.13	0.56-2.30	1.08	0.53-2.24
	Selenium_category2	0.76	0.38-1.55	0.92	0.44-1.90	0.88	0.42-1.85
Tracheitis	Copper_category0	Ref	/	Ref	/	Ref	/
	Copper_category1	2.18	1.33-3.69	1.98	1.20-3.36	1.82	1.10-3.12
	Copper_category2	2.09	1.25-3.60	1.89	1.12-3.26	1.65	0.97-2.89
	Zinc_category0	Ref	/	Ref	/	Ref	/
	Zinc_category1	1.46	0.97-2.24	1.4	0.92-2.14	1.41	0.93-2.15
	Zinc_category2	1.19	0.76-1.88	1.12	0.71-1.76	1.11	0.70-1.76
	Selenium_category0	Ref	/	Ref	/	Ref	/
	Selenium_category1	0.63	0.40-0.96	0.64	0.41-0.98	0.64	0.41-0.99
	Selenium_category2	0.84	0.56-1.27	0.91	0.60-1.37	0.92	0.60-1.39
COPD	Copper_category0	Ref	/	Ref	/	Ref	/
	Copper_category1	2.61	1.36-5.23	2.24	1.15-4.55	2.14	1.92-4.37
	Copper_category2	4.31	2.22-8.80	3.62	1.84-7.49	3.33	1.68-6.93
	Zinc_category0	Ref	/	Ref	/	Ref	/
	Zinc_category1	1.51	0.83-2.81	1.34	0.73-2.52	1.29	0.70-2.42
	Zinc_category2	2.36	1.31-4.34	1.95	1.08-3.63	1.91	1.05-3.55

	Selenium_category0	Ref	/	Ref	/	Ref	/
	Selenium_category1	0.76	0.42-1.35	0.88	0.49-1.59	0.84	0.46-1.53
	Selenium_category2	0.75	0.43-1.33	0.93	0.52-1.66	0.89	0.49-1.61
Asthma	Copper_category0	Ref	/	Ref	/	Ref	/
	Copper_category1	1.11	0.84-1.47	1.08	0.82-1.43	1.01	0.76-1.34
	Copper_category2	1.54	1.16-2.06	1.49	1.12-1.20	1.32	0.98-1.77
	Zinc_category0	Ref	/	Ref	/	Ref	/
	Zinc_category1	1.02	0.79-1.32	1	0.77-1.29	1.01	0.77-1.30
	Zinc_category2	1.08	0.83-1.40	1.06	0.82-1.37	1.06	0.81-1.37
	Selenium_category0	Ref	/	Ref	/	Ref	/
	Selenium_category1	0.83	0.64-1.07	0.83	0.64-1.08	0.83	0.64-1.07
	Selenium_category2	0.89	0.69-1.16	0.91	0.70-1.18	0.9	0.69-1.17