

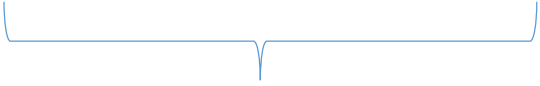
## SUPPLEMENTARY MATERIAL

### LITERATURE SEARCH:


The following search terms were used in PUBMED, EMBASE and Web of Science: ('senior' OR 'older person' OR 'older people' OR 'older adults' OR 'elderly' OR 'ageing' OR 'geriatric' OR 'advanced age') AND ('observational study' OR 'epidemiological study' OR 'population-based study' OR 'cross-sectional study' OR 'longitudinal study' OR 'prospective study' OR 'cohort study' OR 'cohort design' OR 'cross-sectional design' OR 'longitudinal design' OR 'population-based design' OR 'epidemiological design' OR 'prospective design') AND ('free living' OR 'independent living' OR 'community dwelling' OR 'non-institutionalised' OR 'institutionalised' OR 'care home' OR 'nursing home' OR 'retired home' OR 'dependent living' OR 'care centre') AND ('mineral intake' OR 'mineral deficiency' OR 'mineral inadequacy' OR 'nutrient intake' OR 'nutritional intake' OR 'nutrient deficient' OR 'nutrient deficiency' OR 'nutrient deficiencies' OR 'dietary intake' OR 'food intake' OR 'diet records' OR 'dietary adequacy' OR 'nutrition assessment' OR 'nutritional status' OR 'trace mineral' OR 'trace element').

### QUALITY ASSESSMENT:

**Supplementary Table 1:** Outline of the combined quality assessment.

Component	Assessment Criteria	Points
Predefined study population (e.g. area, sample size, random-sampling or non-random sampling, inclusion period)	Information given	1
	No information	0
Inclusion and exclusion criteria	Clearly defined	1
	Not defined	0
 SELECTION		
A validated method as stated by FAO [1]	The method as outlined by FAO and expression of validation	2
(validated diet records (three days or more), food frequency questionnaire (FFQ), dietary history, 24-h dietary recall)	If the method outlined by FAO is used but no expression of validation	1
	Other methods or no information about the method	0

Selective reporting bias	All subjects completed the study (Reported data is equal to the initial sample size)	1
	Some subjects were lost but the description provided of those lost (Reported data is not equal to initial sample size but rationale is given)	1
	Some subjects were lost and no description of those lost (Reported data is not equal to initial sample size, no information or incomplete justification is given)	0



Adapted by ter Borg et al. [2])

FAO: Food and Agriculture Organization of the United Nations [1]

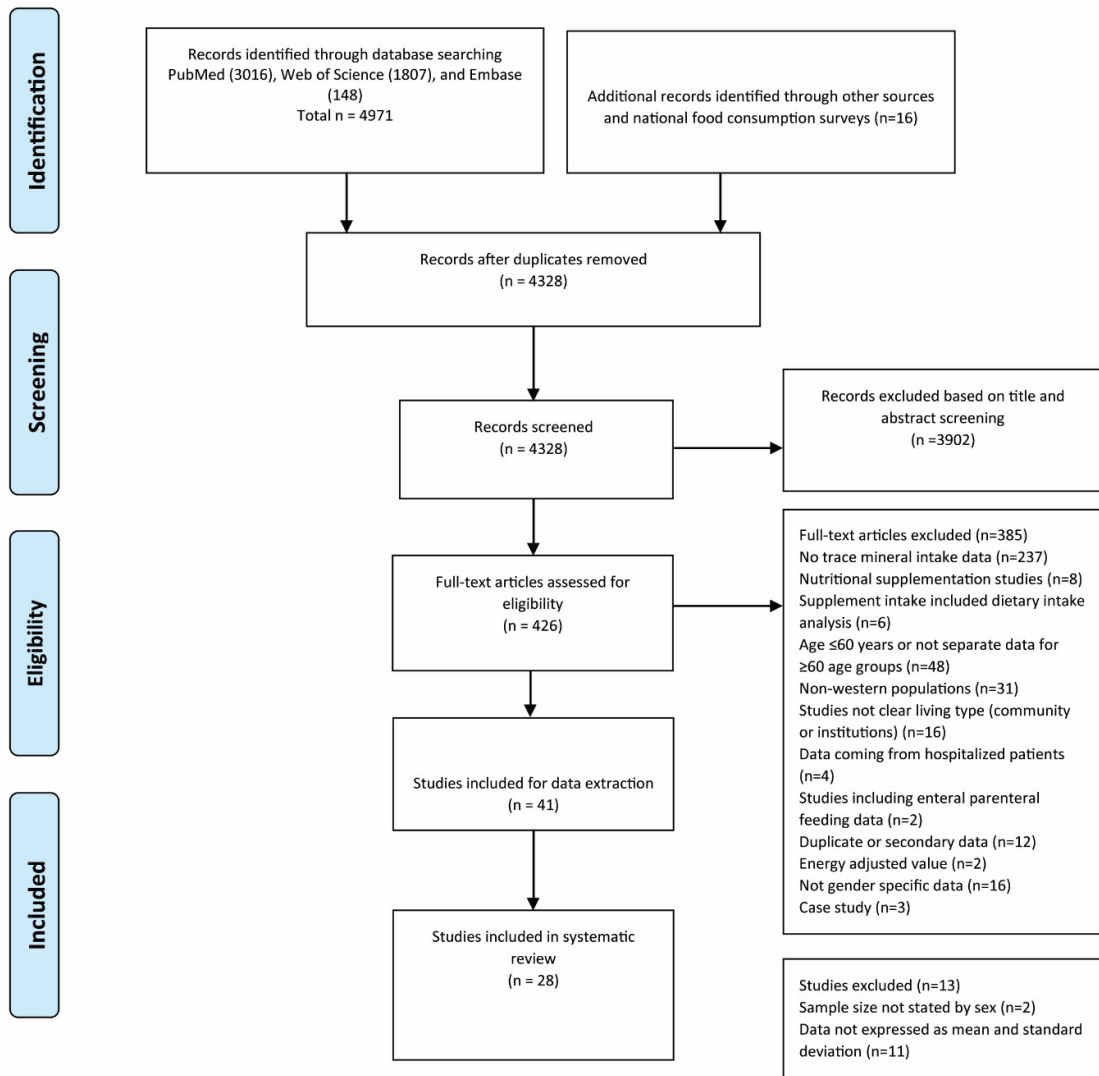
Quality Score: 0 – 2 = Low quality, 3 – 4 = Moderate quality, 5 = High quality

**Supplementary Table 2:** Summary of the study quality of the included studies.

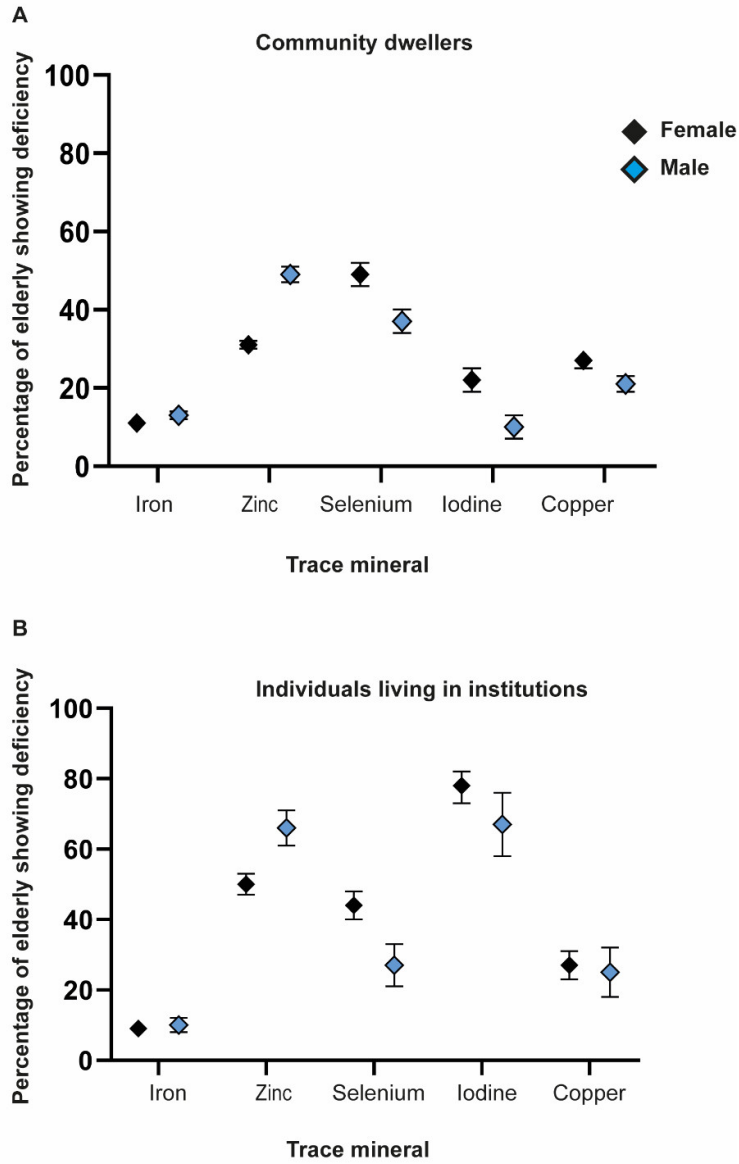
Reference	Selection bias		Outcome bias		Quality
	Predefined population	In/Exclusion criteria	Validated method	Transparent reporting	
(Wyka et al. [3])	1	0	1	1	Moderate
(Zhu et al. [4])	1	1	2	1	High
(Jiménez-Redondo et al. [5])	1	1	1	1	Moderate
(Engelheart and Akner [6])	1	1	1	1	Moderate
(Dumartheray et al. [7])	1	0	2	1	Moderate
(Li et al. [8])	1	1	1	1	Moderate
	1	0	1	1	Moderate

(Destefani et al. [9])	1	1	1	1	Moderate
(Feart et al. [10])	1	1	2	1	High
(Ocke et al. [11])	1	1	1	0	Moderate
(Sette et al. [12])	1	0	1	1	Moderate
(Biró et al. [13])	1	1	1	0	Moderate
(National Diet and Nutrition Survey [14])	1	1	2	1	High
USDA et al. [15])	1	1	1	1	Moderate
(NANS [16])	1	0	1	1	Moderate
(González et al. [17])	1	1	2	1	High
(Rakıcıoğlu et al. [18])					
(Fernández-Barrés et al. [19])	1	1	1	1	Moderate
(Woods et al. [20])	1	0	1	1	Moderate
(Iuliano et al. [21])	1	1	1	1	Moderate
(Lengyel et al. [22])	0	1	2	1	Moderate
(Lopez-Contreras et al. [23])	1	0	1	1	Moderate
(Leslie et al. [24])	1	1	1	1	Moderate

(Aghdassi et al. [25])	0	1	1	1	Moderate
(Rodríguez-Rejón et al. [26])	1	0	1	1	Moderate
(Assis et al. [27])	1	1	1	0	Moderate
(Martínez Tomé et al. [28])					
(Roussel et al. [29])					

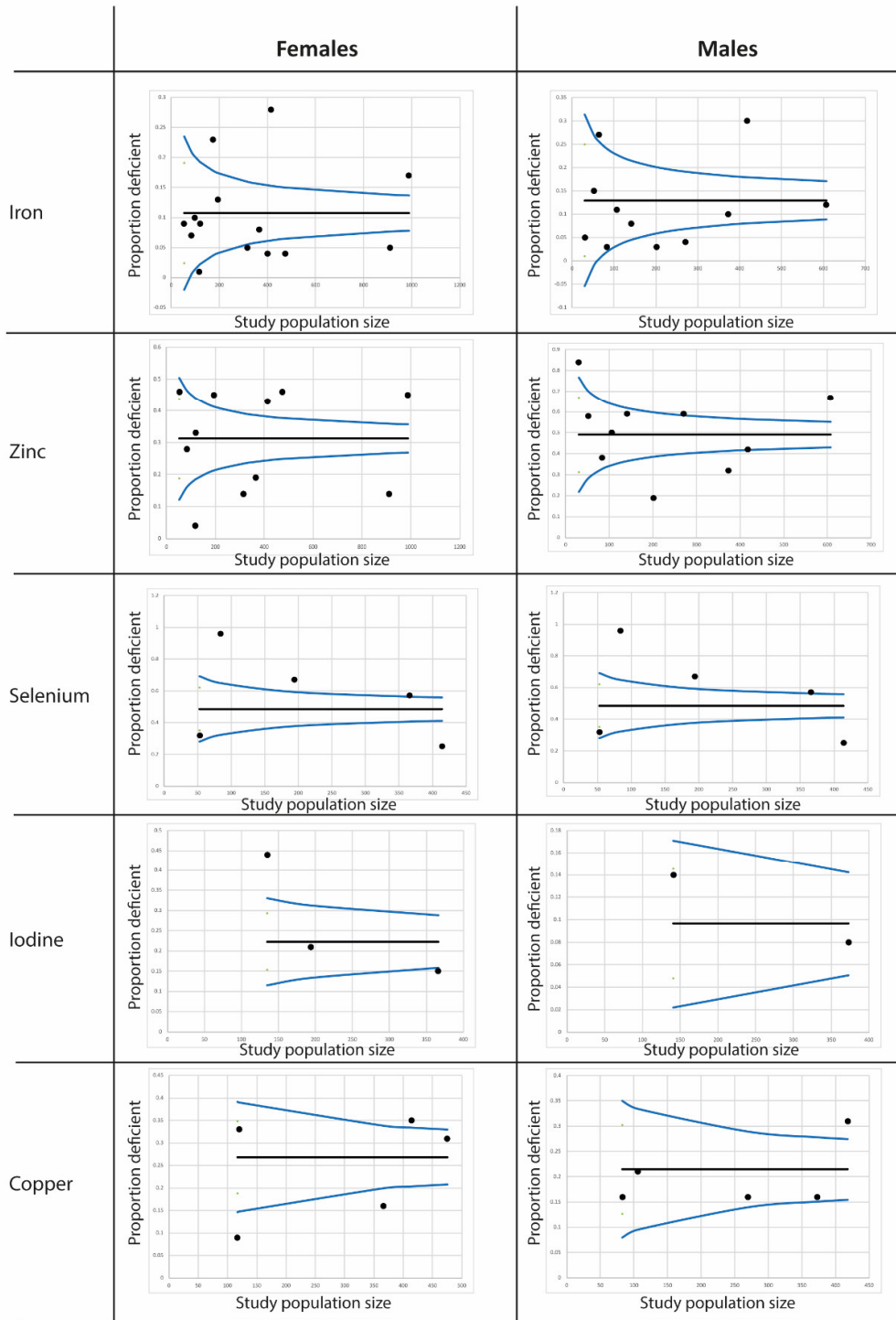


**Supplementary Figure 1:** PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) flowchart for included and excluded studies in the article.



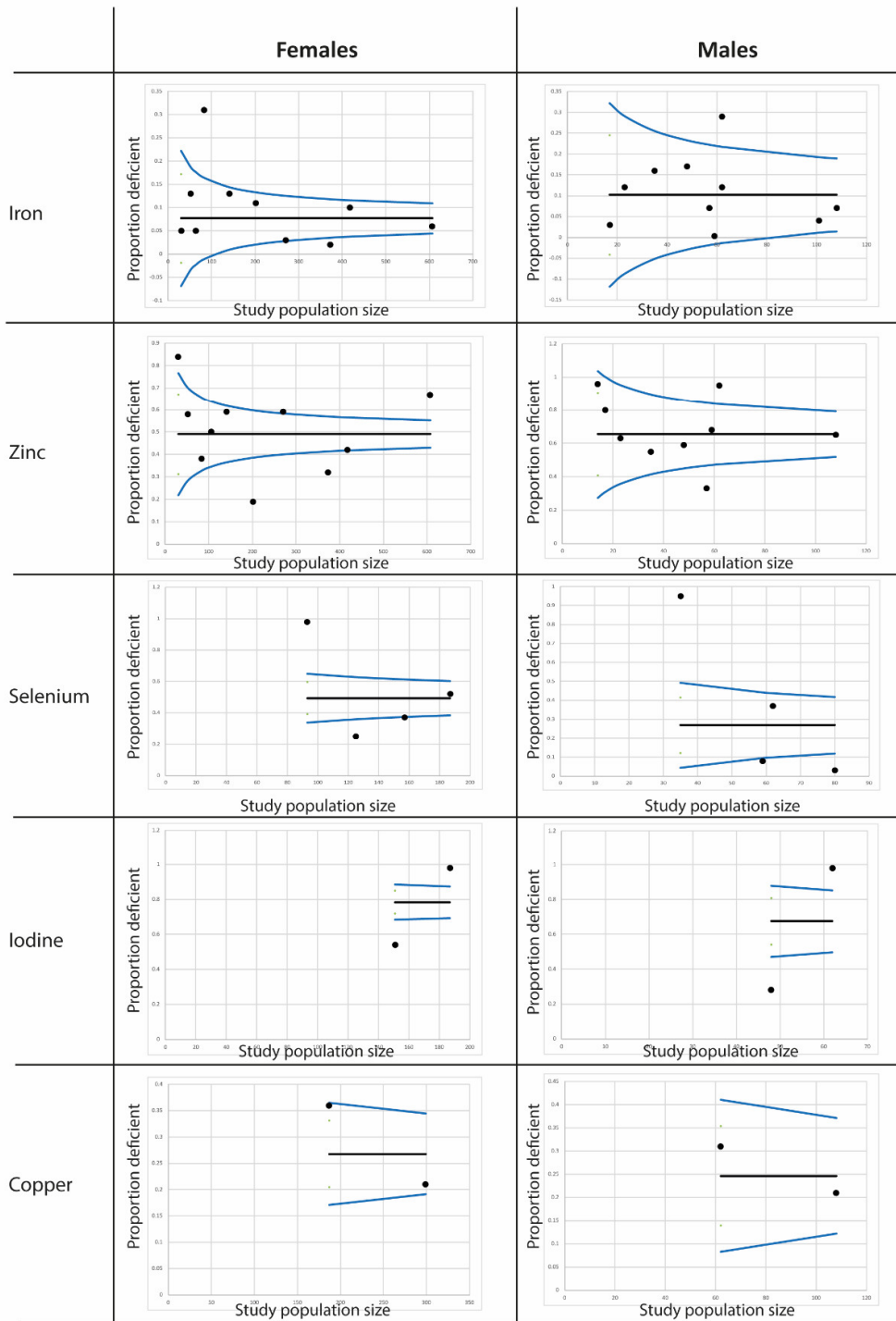
**Supplementary Figure 2:** The percentage of males and females at risk of deficiency for iron, zinc, selenium iodine and copper living in the community (A) or in institutions (B). Data are presented as mean percentage of population at risk of deficiency  $\pm$  upper and lower limits.

Community dwelling participants.



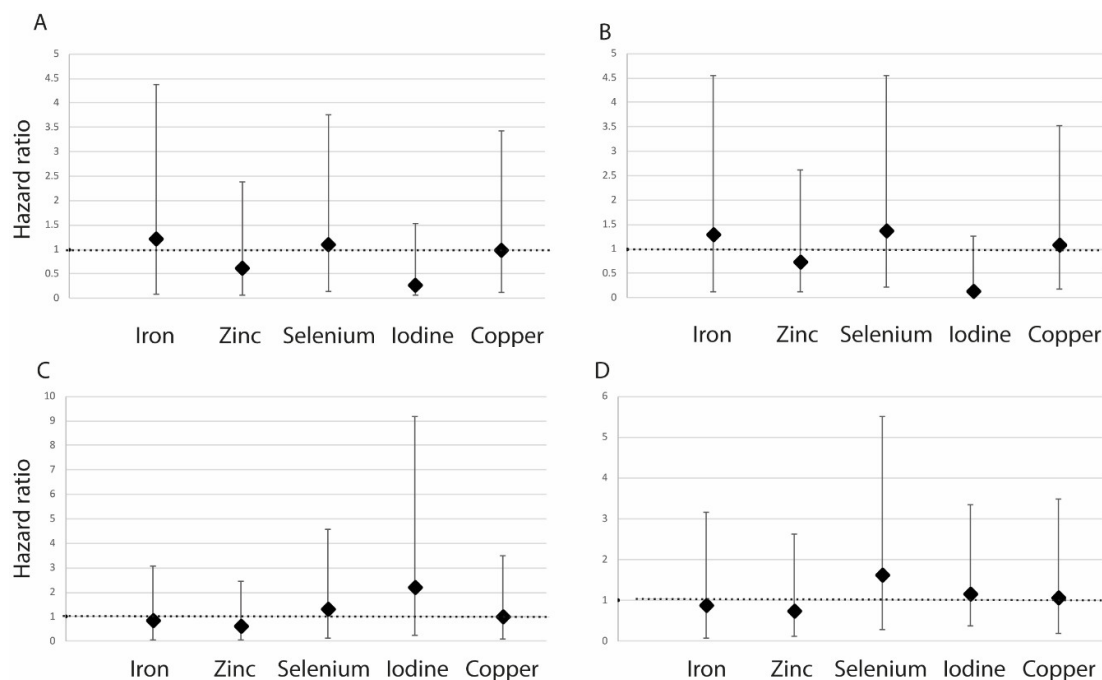
**Supplementary Figure 3.** Funnel plots showing the proportion of the population which were deficient against participant number in community dwelling individuals. Confidence limits (99.7% are indicated by the blue line).

Institution dwelling participants.



**Supplementary Figure 4.** Funnel plots showing the proportion of the population which were deficient against participant number in individuals living in institutions. Confidence limits (99.7% are indicated by the blue line).





**Supplementary Figure 5.** A & B: Hazard ratios comparing level of deficiency for females (A) and males (B) between community and institution settings (B). C & D: Hazard ratios comparing level of deficiency between females and males for those in the community (C) and those living in institutions (D).

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