

Supplement Table 1. Partial correlation coefficients between dietary iron intake and serum ferritin in the participants from CNHS and SDHS¹

Dietary intake	serum ferritin
Total Iron	0.05*
Haem Iron	-0.01
Nonhaem Iron	0.06*

¹ Correlations were adjusted for age and sex.

* Coefficients are significant at the 0.05 level.

Supplement Table 2. ORs (95% CI) for MetS according to the quartiles of dietary iron, zinc and magnesium intakes (mg/day) in male and female participants from CNHS and SDHS¹.

		Quartiles of Dietary Iron, Zinc or Magnesium (mg/day),				ORs (95% CI)
		Q1	Q2	Q3	Q4	<i>p</i> -Value for Trend
Male						
n		596	597	597	596	
Total Iron						
		<14.12	(14.12, 17.75)	(17.75, 22.59)	≥22.59	
Model1	Reference		1.11(0.86, 1.43)	1.39(1.09, 1.78)	1.32(1.03, 1.69)	0.03
Model2	Reference		1.05(0.80, 1.39)	1.26(0.94, 1.70)	1.21(0.86, 1.70)	0.41
Model3	Reference		1.20(0.88, 1.65)	1.56(1.07, 2.28)	1.57(1.02, 2.41)	0.12
Haem Iron						
		<0.66	(0.66, 1.15)	(1.15, 1.74)	≥1.74	
Model1	Reference		0.97(0.76, 1.24)	0.92(0.72, 1.17)	0.92(0.72, 1.17)	0.87
Model2	Reference		0.89(0.68, 1.15)	0.74(0.56, 0.97)	0.75(0.57, 1.00)	0.11
Model3	Reference		1.02(0.78, 1.35)	0.92(0.68, 1.24)	0.98(0.70, 1.36)	0.88
Nonhaem Iron						
		<13.15	(13.15, 16.43)	(16.43, 20.92)	≥20.92	
Model1	Reference		1.33(1.04, 1.72)	1.47(1.14, 1.89)	1.38(1.07, 1.77)	0.02
Model2	Reference		1.29(0.98, 1.70)	1.38(1.02, 1.85)	1.27(0.90, 1.80)	0.17
Model3	Reference		1.49(1.09, 2.04)	1.60(1.10, 2.32)	1.50(0.98, 2.30)	0.06
Zinc						
		<7.50	(7.50, 9.39)	(9.39, 11.94)	≥11.94	
Model1	Reference		0.84(0.66, 1.07)	0.86(0.67, 1.09)	0.84(0.66, 1.07)	0.42
Model2	Reference		0.78(0.60, 1.01)	0.65(0.49, 0.88)	0.62(0.45, 0.87)	0.02
Model3	Reference		0.66(0.50, 0.88)	0.47(0.33, 0.66)	0.42(0.28, 0.62)	<0.01
Magnesium (mg/day)						
		<196.93	(196.93, 250.88)	(250.88, 323.64)	≥323.64	
Model1	Reference		1.00(0.78, 1.28)	1.38(1.08, 1.76)	1.21(0.94, 1.55)	0.02
Model2	Reference		0.91(0.70, 1.20)	1.20(0.90, 1.60)	1.10(0.78, 1.54)	0.26
Model3	Reference		0.99(0.73, 1.35)	1.36(0.94, 1.96)	1.31(0.85, 2.02)	0.18

Female					
n	735	734	734	734	
Total Iron					
	<12.42	(12.42, 15.63)	(15.63, 19.96)	\geq 19.96	
Model1	Reference	1.26(1.03, 1.56)	1.26(1.03, 1.56)	1.30(1.05, 1.60)	0.05
Model2	Reference	1.28(1.01, 1.62)	1.18(0.92, 1.52)	1.34(0.99, 1.80)	0.16
Model3	Reference	1.21(0.91, 1.61)	1.17(0.84, 1.63)	1.43(0.98, 2.09)	0.23
Haem Iron					
	<0.58	(0.58, 0.98)	(0.98, 1.55)	\geq 1.55	
Model1	Reference	0.86(0.70, 1.05)	0.68(0.55, 0.83)	0.59(0.48, 0.73)	<0.01
Model2	Reference	0.82(0.66, 1.02)	0.68(0.54, 0.86)	0.61(0.48, 0.78)	<0.01
Model3	Reference	0.82(0.66, 1.04)	0.69(0.53, 0.89)	0.63(0.47, 0.84)	0.01
Nonhaem Iron					
	<11.57	(11.57, 14.51)	(14.51, 18.50)	\geq 18.50	
Model1	Reference	1.28(1.04, 1.58)	1.41(1.14, 1.74)	1.37(1.11, 1.69)	0.01
Model2	Reference	1.34(1.06, 1.69)	1.38(1.08, 1.78)	1.48(1.10, 1.99)	0.03
Model3	Reference	1.30(0.98, 1.72)	1.42(1.03, 1.96)	1.62(1.12, 2.33)	0.08
Zinc					
	<6.47	(6.47, 8.08)	(8.08, 10.29)	\geq 10.29	
Model1	Reference	1.03(0.84, 1.27)	0.96(0.78, 1.18)	0.89(0.72, 1.10)	0.57
Model2	Reference	1.00(0.80, 1.26)	0.87(0.68, 1.11)	0.75(0.56, 1.01)	0.16
Model3	Reference	0.82(0.64, 1.06)	0.63(0.46, 0.85)	0.52(0.36, 0.74)	<0.01
Magnesium (mg/day)					
	<173.85	(173.85, 224.70)	(224.70, 289.78)	\geq 289.78	
Model1	Reference	1.24(1.00, 1.53)	1.42(1.15, 1.75)	1.36(1.10, 1.67)	0.01
Model2	Reference	1.23(0.97, 1.55)	1.33(1.03, 1.70)	1.20(0.89, 1.62)	0.15
Model3	Reference	1.28(0.97, 1.71)	1.54(1.10, 2.15)	1.45(0.98, 2.16)	0.10

Supplement Table 3. ORs (95% CI) for MetS according to the quartiles of dietary iron, zinc and magnesium intakes (mg/day) in male and female participants from CNHS and SDHS, stratified by food sources.

Quartiles of Dietary Iron, Zinc or Magnesium (mg/day), ORs (95% CI)					
	Q1	Q2	Q3	Q4	<i>p</i> -Value for Trend
Male					
n	596	597	597	596	
Dietary Source of Red Meat					
Iron					
	<0.43	(0.43, 1.06)	(1.06, 1.89)	\geq 1.89	
Model1	Reference	0.99(0.78, 1.26)	0.80(0.63, 1.02)	0.81(0.63, 1.03)	0.13
Model2	Reference	0.91(0.71, 1.18)	0.79(0.61, 1.02)	0.75(0.57, 0.97)	0.12

	Model3	Reference	1.10(0.66, 1.82)	1.12(0.59, 2.15)	1.29(0.60, 2.77)	0.91
Zinc						
		<0.55	(0.55, 1.37)	(1.37, 2.50)	≥ 2.50	
	Model1	Reference	0.93(0.73, 1.18)	0.83(0.65, 1.06)	0.77(0.60, 0.99)	0.17
	Model2	Reference	0.85(0.66, 1.10)	0.81(0.63, 1.05)	0.70(0.53, 0.92)	0.08
	Model3	Reference	0.75(0.36, 1.58)	1.03(0.43, 2.48)	0.92(0.35, 2.43)	0.46
Magnesium						
		<4.03	(4.03, 9.99)	(9.99, 17.67)	≥ 17.67	
	Model1	Reference	0.98(0.77, 1.24)	0.83(0.65, 1.06)	0.75(0.59, 0.97)	0.08
	Model2	Reference	0.94(0.73, 1.22)	0.75(0.58, 0.98)	0.70(0.53, 0.92)	0.03
	Model3	Reference	1.09(0.54, 2.20)	0.67(0.29, 1.53)	0.59(0.24, 1.47)	0.16
Dietary Source of Cereal and Potato						
Iron						
		<5.06	(5.06, 6.73)	(6.73, 8.98)	≥ 8.98	
	Model1	Reference	1.09(0.85, 1.41)	1.50(1.17, 1.92)	1.50(1.17, 1.92)	<0.01
	Model2	Reference	1.24(0.94, 1.62)	1.66(1.27, 2.18)	1.87(1.39, 2.52)	<0.01
	Model3	Reference	1.19(0.82, 1.72)	1.34(0.87, 2.07)	1.34(0.80, 2.22)	0.61
Zinc						
		<2.87	(2.87, 3.77)	(3.77, 4.84)	≥ 4.84	
	Model1	Reference	0.96(0.75, 1.24)	1.14(0.89, 1.46)	1.12(0.88, 1.43)	0.45
	Model2	Reference	0.97(0.74, 1.26)	1.23(0.94, 1.61)	1.33(0.98, 1.79)	0.09
	Model3	Reference	0.61(0.44, 0.86)	0.57(0.39, 0.84)	0.47(0.29, 0.74)	0.01
Magnesium						
		<69.08	(69.08, 96.83)	(96.83, 135.73)	≥ 135.73	
	Model1	Reference	1.08(0.83, 1.40)	1.62(1.26, 2.08)	1.77(1.38, 2.27)	<0.01
	Model2	Reference	1.20(0.91, 1.58)	1.81(1.38, 2.38)	2.29(1.69, 3.09)	<0.01
	Model3	Reference	1.42(0.98, 2.04)	2.22(1.45, 3.39)	3.03(1.86, 4.95)	<0.01
Dietary Source of Vegetable and Fruit						
Iron						
		<1.95	(1.95, 3.27)	(3.27, 5.14)	≥ 5.14	
	Model1	Reference	0.80(0.58, 1.11)	0.75(0.55, 1.04)	0.62(0.45, 0.86)	0.04
	Model2	Reference	0.77(0.55, 1.07)	0.69(0.49, 0.97)	0.58(0.40, 0.83)	0.02
	Model3	Reference	0.96(0.57, 1.64)	0.90(0.46, 1.74)	0.66(0.31, 1.42)	0.56
Zinc						
		<0.82	(0.82, 1.39)	(1.39, 2.39)	≥ 2.39	
	Model1	Reference	0.92(0.72, 1.17)	0.94(0.74, 1.20)	0.86(0.67, 1.10)	0.68
	Model2	Reference	0.87(0.68, 1.13)	0.86(0.67, 1.12)	0.74(0.56, 0.97)	0.18
	Model3	Reference	1.57(0.93, 2.63)	2.56(1.34, 4.90)	2.35(1.05, 5.24)	0.04
Magnesium						
		<38.60	(38.60, 63.11)	(63.11, 104.58)	≥ 104.58	
	Model1	Reference	0.90(0.71, 1.15)	0.83(0.65, 1.07)	0.90(0.70, 1.15)	0.54
	Model2	Reference	0.83(0.64, 1.07)	0.76(0.58, 0.98)	0.76(0.58, 0.99)	0.13
	Model3	Reference	0.47(0.28, 0.78)	0.30(0.16, 0.57)	0.35(0.16, 0.75)	<0.01

Female						
n		735	734	734	734	
Dietary Source of Red Meat						
Iron						
		<0.32	(0.32, 0.80)	(0.80, 1.50)	\geq 1.50	
Model1	Reference	0.74(0.60, 0.91)	0.72(0.58, 0.88)	0.65(0.53, 0.80)		<0.01
Model2	Reference	0.77(0.62, 0.96)	0.78(0.63, 0.97)	0.75(0.60, 0.95)		0.04
Model3	Reference	1.06(0.54, 2.07)	1.16(0.55, 2.43)	1.28(0.56, 2.91)		0.91
Zinc						
		<0.40	(0.40, 1.06)	(1.06, 1.97)	\geq 1.97	
Model1	Reference	0.75(0.61, 0.92)	0.69(0.56, 0.85)	0.63(0.51, 0.78)		<0.01
Model2	Reference	0.75(0.60, 0.93)	0.77(0.62, 0.97)	0.73(0.58, 0.91)		0.02
Model3	Reference	0.51(0.24, 1.11)	0.53(0.23, 1.24)	0.51(0.20, 1.28)		0.40
Magnesium						
		<2.86	(2.86, 7.85)	(7.85, 13.67)	\geq 13.67	
Model1	Reference	0.79(0.64, 0.97)	0.73(0.60, 0.90)	0.62(0.51, 0.77)		<0.01
Model2	Reference	0.82(0.66, 1.02)	0.80(0.64, 1.00)	0.74(0.58, 0.93)		0.06
Model3	Reference	1.42(0.77, 2.61)	1.29(0.64, 2.60)	1.12(0.52, 2.43)		0.55
Dietary Source of Cereal and Potato						
Iron						
		<4.05	(4.05, 5.57)	(5.57, 7.49)	\geq 7.49	
Model1	Reference	1.23(0.99, 1.52)	1.72(1.39, 2.12)	1.98(1.60, 2.45)		<0.01
Model2	Reference	1.22(0.97, 1.54)	1.76(1.39, 2.23)	2.19(1.70, 2.84)		<0.01
Model3	Reference	1.22(0.89, 1.68)	1.41(0.94, 2.10)	1.39(0.88, 2.21)		0.42
Zinc						
		<2.34	(2.34, 3.08)	(3.08, 4.04)	\geq 4.04	
Model1	Reference	1.13(0.91, 1.40)	1.38(1.12, 1.70)	1.60(1.30, 1.97)		<0.01
Model2	Reference	1.04(0.83, 1.31)	1.35(1.07, 1.71)	1.78(1.37, 2.31)		<0.01
Model3	Reference	0.73(0.55, 0.98)	0.67(0.48, 0.95)	0.66(0.44, 1.01)		0.13
Magnesium						
		<58.17	(58.17, 83.17)	(83.17, 118.28)	\geq 118.28	
Model1	Reference	1.13(0.91, 1.41)	1.73(1.40, 2.14)	2.26(1.83, 2.80)		<0.01
Model2	Reference	1.14(0.90, 1.45)	1.79(1.42, 2.27)	2.53(1.95, 3.28)		<0.01
Model3	Reference	1.19(0.88, 1.62)	1.81(1.24, 2.62)	2.59(1.67, 4.00)		<0.01
Dietary Source of Vegetable and Fruit						
Iron						
		<1.97	(1.97, 3.17)	(3.17, 4.88)	\geq 4.88	
Model1	Reference	0.92(0.70, 1.20)	0.87(0.67, 1.15)	0.95(0.73, 1.25)		0.80
Model2	Reference	0.87(0.65, 1.17)	0.80(0.59, 1.08)	0.86(0.62, 1.17)		0.54
Model3	Reference	0.89(0.58, 1.38)	0.81(0.47, 1.39)	0.81(0.43, 1.54)		0.90
Zinc						
		<0.80	(0.80, 1.33)	(1.33, 2.26)	\geq 2.26	
Model1	Reference	1.09(0.88, 1.33)	1.08(0.88, 1.33)	0.86(0.69, 1.06)		0.09
Model2	Reference	1.00(0.80, 1.25)	0.97(0.77, 1.22)	0.65(0.51, 0.82)		<0.01

Model3	Reference	0.88(0.59, 1.31)	0.74(0.43, 1.24)	0.68(0.35, 1.33)	0.68
Magnesium					
	<38.60	(38.60, 63.55)	(63.55, 99.63)	≥99.63	
Model1	Reference	1.13(0.92, 1.39)	0.98(0.80, 1.21)	1.04(0.85, 1.29)	0.56
Model2	Reference	0.99(0.79, 1.25)	0.89(0.70, 1.12)	0.81(0.64, 1.03)	0.23
Model3	Reference	1.09(0.72, 1.65)	1.28(0.76, 2.15)	1.63(0.89, 2.99)	0.38
