

**Supplementary file 8. Sensitivity analyses for nutritional outcomes**

**Table 1. Use of imputed vs. original IMD variable as a coefficient in the model with the nutritional outcome of free sugar intake (g) at lunch**

	<b>Model with original IMD variable</b>	<b>Model with imputed IMD variable</b>
Pupils	1,878	2,100
Schools	36	36
SFS Status: Mandated	-2.78 (-4.66- -0.90) p = 0.004	-2.03 (-3.76- -0.30) p = 0.021
Sex: Male	-0.21 (-2.00-1.59) p = 0.823	-0.03 (-1.67-1.62) p = 0.974
Sex: Other	0.36 (-4.63-5.36) p = 0.887	0.63 (-3.93-5.20) p = 0.786
Age	-1.13 (-3.67-1.42) p = 0.386	-0.16 (-2.49-2.17) p = 0.893
Ethnicity: Asian/Asian British	-1.69 (-4.12-0.74) p = 0.173	-1.16 (-3.41-1.08) p = 0.309
Ethnicity: Black/African/Caribbean/Black British	1.71 (-2.31-5.73) p = 0.404	2.10 (-1.54-5.73) p = 0.258
Ethnicity: Mixed/Multiple	-3.04 (-6.80-0.73) p = 0.114	-2.78 (-6.20-0.65) p = 0.112
Ethnicity: Other	2.57 (-2.35-7.49) p = 0.305	1.47 (-2.91-5.85) p = 0.511
IMD Quintile: 2	2.29 (-0.53-5.11) p = 0.111	1.32 (-1.28-3.92) p = 0.320
IMD Quintile: 3	1.41 (-1.47-4.30) p = 0.337	1.21 (-1.49-3.90) p = 0.381
IMD Quintile: 4	0.87 (-2.19-3.92) p = 0.578	0.61 (-2.22-3.43) p = 0.675
IMD Quintile: 5	0.32 (-2.73-3.37) p = 0.837	0.79 (-2.09-3.68) p = 0.590
Source of Lunch: 100% School Provided	-3.55 (-5.18- -1.91) p < .001	-2.04 (-3.54- -0.54) p = 0.008
Percent FSM	0.07 (-0.04-0.18) p = 0.205	0.03 (-0.07-0.13) p = 0.572
School Level IDACI	0.12 (0.02-0.23) p = 0.025	0.15 (0.05-0.25) p = 0.003
Sixth Form	-3.18 (-5.14- -1.21) p = 0.002	-3.11 (-4.92- -1.29) p = 0.001
Provision: External	1.12 (-0.67-2.91) p = 0.221	0.92 (-0.73-2.56) p = 0.274
Religious: Secular	5.01 (1.88-8.14) p = 0.002	5.04 (2.13-7.96) p = 0.001
Year collected: 2020/2021	-3.51 (-6.77- -0.25) p = 0.035	-4.08 (-7.09- -1.07) p = 0.008
Year collected: 2021/2022	0.49 (-1.52-2.51) p = 0.631	0.18 (-1.67-2.04) p = 0.845
Year: 9	0.88 (-4.61-6.37) p = 0.753	-2.16 (-7.17-2.85) p = 0.397
Year: 10	0.94 (-6.97-8.86) p = 0.815	-3.27 (-10.52-3.98) p = 0.377

**Table 2. Use of imputed vs. original Age variable as a coefficient in the model with the nutritional outcome of free sugar intake (g) at lunch**

	Model with original Age variable	Model with imputed Age variable
Pupils	1,878	1,913
Schools	36	36
SFS Status: Mandated	-2.78 (-4.66–0.90) p =0.0037	-2.88 (-4.75–1.02) p =0.0025
Sex: Male	-0.21 (-2.00-1.59) p =0.8225	0.08 (-1.70-1.86) p =0.9276
Sex: Other	0.36 (-4.63-5.36) p =0.8866	0.34 (-4.60-5.28) p =0.8924
Age	-1.13 (-3.67-1.42) p =0.3859	-1.09 (-3.63-1.45) p =0.3987
Ethnicity: Asian/Asian British	-1.69 (-4.12-0.74) p =0.1728	-1.87 (-4.27-0.53) p =0.1266
Ethnicity: Black/African/Caribbean/Black British	1.71 (-2.31-5.73) p =0.4040	1.58 (-2.44-5.59) p =0.4410
Ethnicity: Mixed/Multiple	-3.04 (-6.80-0.73) p =0.1138	-3.17 (-6.91-0.57) p =0.0969
Ethnicity: Other	2.57 (-2.35-7.49) p =0.3050	2.35 (-2.51-7.20) p =0.3430
IMD Quintile: 2	2.29 (-0.53-5.11) p =0.1110	2.07 (-0.73-4.87) p =0.1481
IMD Quintile: 3	1.41 (-1.47-4.30) p =0.3367	1.15 (-1.71-4.01) p =0.4319
IMD Quintile: 4	0.87 (-2.19-3.92) p =0.5782	0.75 (-2.28-3.79) p =0.6262
IMD Quintile: 5	0.32 (-2.73-3.37) p =0.8367	0.33 (-2.70-3.35) p =0.8325
Source of Lunch: 100% School Provided	-3.55 (-5.18–1.91) p =0.0000	-3.51 (-5.13–1.89) p =0.0000
Percent FSM	0.07 (-0.04-0.18) p =0.2046	0.07 (-0.04-0.18) p =0.1897
School Level IDACI	0.12 (0.02-0.23) p =0.0253	0.12 (0.01-0.22) p =0.0320
Sixth Form	-3.18 (-5.14–1.21) p =0.0015	-3.17 (-5.11–1.23) p =0.0014
Provision: External	1.12 (-0.67-2.91) p =0.2212	1.09 (-0.69-2.87) p =0.2288
Religious: Secular	5.01 (1.88-8.14) p =0.0017	5.06 (1.94-8.18) p =0.0015
Year collected: 2020/2021	-3.51 (-6.77–0.25) p =0.0348	-3.53 (-6.75–0.31) p =0.0315
Year collected: 2021/2022	0.49 (-1.52-2.51) p =0.6309	0.52 (-1.48-2.52) p =0.6097
Year: 9	0.88 (-4.61-6.37) p =0.7526	0.68 (-4.78-6.15) p =0.8061
Year: 10	0.94 (-6.97-8.86) p =0.8154	0.75 (-7.14-8.64) p =0.8519

**Table 3. Pupils' free sugar intake at lunch, excluding those reporting <400 kcal or >4000 kcal over 24 hours**

	<b>Model with all values included</b>	<b>Model with extreme values excluded</b>
Pupils	1,878	1,839
Schools	36	36
SFS Status: Mandated	-2.78 (-4.66–0.90) p =0.0037	-2.29 (-4.07–0.50) p =0.0121
Sex: Male	-0.21 (-2.00-1.59) p =0.8225	-0.32 (-2.02-1.39) p =0.7151
Sex: Other	0.36 (-4.63-5.36) p =0.8866	0.44 (-4.28-5.17) p =0.8546
Age	-1.13 (-3.67-1.42) p =0.3859	-2.06 (-4.47-0.36) p =0.0951
Ethnicity: Asian/Asian British	-1.69 (-4.12-0.74) p =0.1728	-1.24 (-3.54-1.06) p =0.2893
Ethnicity: Black/African/Caribbean/Black British	1.71 (-2.31-5.73) p =0.4040	1.62 (-2.18-5.42) p =0.4037
Ethnicity: Mixed/Multiple	-3.04 (-6.80-0.73) p =0.1138	-2.87 (-6.47-0.72) p =0.1170
Ethnicity: Other	2.57 (-2.35-7.49) p =0.3050	0.79 (-3.93-5.50) p =0.7439
IMD Quintile: 2	2.29 (-0.53-5.11) p =0.1110	2.08 (-0.60-4.77) p =0.1278
IMD Quintile: 3	1.41 (-1.47-4.30) p =0.3367	2.19 (-0.55-4.93) p =0.1176
IMD Quintile: 4	0.87 (-2.19-3.92) p =0.5782	1.84 (-1.06-4.74) p =0.2145
IMD Quintile: 5	0.32 (-2.73-3.37) p =0.8367	1.11 (-1.79-4.01) p =0.4538
Source of Lunch: 100% School Provided	-3.55 (-5.18–1.91) p =0.0000	-3.38 (-4.93–1.83) p =0.0000
Percent FSM	0.07 (-0.04-0.18) p =0.2046	0.08 (-0.02-0.18) p =0.1202
School Level IDACI	0.12 (0.02-0.23) p =0.0253	0.11 (0.01-0.21) p =0.0364
Sixth Form	-3.18 (-5.14–1.21) p =0.0015	-2.34 (-4.20–0.48) p =0.0137
Provision: External	1.12 (-0.67-2.91) p =0.2212	1.35 (-0.35-3.05) p =0.1189
Religious: Secular	5.01 (1.88-8.14) p =0.0017	4.62 (1.65-7.58) p =0.0023
Year collected: 2020/2021	-3.51 (-6.77–0.25) p =0.0348	-2.81 (-5.90-0.29) p =0.0752
Year collected: 2021/2022	0.49 (-1.52-2.51) p =0.6309	0.59 (-1.32-2.50) p =0.5432
Year: 9	0.88 (-4.61-6.37) p =0.7526	3.22 (-1.98-8.42) p =0.2247
Year: 10	0.94 (-6.97-8.86) p =0.8154	3.52 (-3.99-11.03) p =0.3579