

APPENDICES

Appendix table 1: UVB in association with crude incidence of CRC: 60-74 years of age, controlling for covariates

Covariate	Regression Coefficient	Standard Error	<i>t</i>	<i>p</i> -value
UV B estimate ^a	-0.69	0.13	-5.38	< 0.001
Urbanization ^b	0.05	0.21	0.22	0.83
Pigmentation ^c	-7.84	5.98	-1.31	0.19
GDP ^d	< 0.001	< 0.001	1.99	0.048
Life Expectancy ^e	0.004	0.004	0.10	0.32
Smoking ^f	0.93	0.55	1.68	0.10
Animal Consumption ^g	0.48	0.19	2.56	0.01
Intercept	196.40	33.53	5.86	< 0.001

*Model R*² = 0.71; *p* < 0.001; ^aBeckman et al. ^bChristenson E et al(20). ^cJablonski et al(19). ^{d,e}The World Bank. ^fInstitute for Health Metrics and Evaluation (IHME). ^gThe Food and Agricultural Organization of the United Nations (FAO).

Appendix table 2: UVB in association with crude incidence of CRC: 45-59 years of age, controlling for covariates

Covariate	Regression Coefficient	Standard Error	<i>t</i>	<i>p</i> -value
UV B estimate ^a	-0.14	0.04	-3.57	< 0.001
Urbanization ^b	-0.009	0.07	-0.14	0.89
Pigmentation ^c	-2.15	1.81	-1.19	0.24
GDP ^d	< 0.001	< 0.001	1.92	0.06
Life Expectancy ^e	0.002	0.001	1.51	0.13
Smoking ^f	0.38	0.17	2.25	0.03
Animal Consumption ^g	0.20	0.06	3.45	< 0.001
Intercept	43.55	10.16	4.29	< 0.001

*Model R*² = 0.67; *p* < 0.001; ^aBeckman et al, ^bChristenson E et al(20). ^cJablonski et al(19). ^{d,e}The World Bank. ^fInstitute for Health Metrics and Evaluation (IHME). ^gThe Food and Agricultural Organization of the United Nations (FAO).

Appendix table 3: UVB in association with crude incidence of CRC: 30-44 years of age, controlling for covariates

Covariate	Regression Coefficient	Standard Error	<i>t</i>	<i>p</i> -value
UV B estimate ^a	-0.001	0.007	-0.21	0.84
Urbanization ^b	0.02	0.01	1.46	0.15
Pigmentation ^c	-0.70	0.32	-2.22	0.03
GDP ^d	< 0.001	< 0.001	2.70	0.008
Life Expectancy ^e	< 0.001	< 0.001	0.47	0.64
Smoking ^f	-0.03	0.03	-1.08	0.28
Animal Consumption ^g	0.01	0.01	1.03	0.31
Intercept	4.75	1.75	2.68	0.008

*Model R*² = 0.42; *p* < 0.001; ^aBeckman et al , ^bChristenson E et al(20). ^cJablonski et al(19). ^{d,e}The World Bank. ^fInstitute for Health Metrics and Evaluation (IHME). ^gThe Food and Agricultural Organization of the United Nations (FAO).

Appendix table 4: UVB in association with crude incidence of CRC: 15-29 years of age, controlling for covariates

Covariate	Regression Coefficient	Standard Error	<i>t</i>	<i>p</i> -value
UV B estimate ^a	0.002	0.001	1.17	0.24
Urbanization ^b	0.003	0.002	1.42	0.16
Pigmentation ^c	-0.23	0.06	-3.62	< 0.001
GDP ^d	< 0.001	< 0.001	-0.42	0.68
Life Expectancy ^e	< 0.001	< 0.001	-0.21	0.84
Smoking ^f	-0.009	0.006	-1.67	0.10
Animal Consumption ^g	< 0.001	0.002	0.23	0.82
Intercept	0.73	0.36	2.05	0.04

*Model R*² = 0.16; *p* < 0.001; ^aBeckman et al, ^bChristenson E et al(20). ^cJablonski et al(19). ^{d,e}The World Bank. ^fInstitute for Health Metrics and Evaluation (IHME). ^gThe Food and Agricultural Organization of the United Nations (FAO).

Appendix table 5: UVB in association with crude incidence of CRC: 0-14 years of age, controlling for covariates

Covariate	Regression Coefficient	Standard Error	<i>t</i>	<i>p</i> -value
UV B estimate ^a	< 0.001	< 0.001	-0.83	0.41
Urbanization ^b	< 0.001	< 0.001	0.40	0.69
Pigmentation ^c	-0.008	0.02	-0.74	0.46
GDP ^d	< 0.001	< 0.001	2.47	0.02
Life Expectancy ^e	< 0.001	< 0.001	0.08	0.93
Smoking ^f	< 0.001	0.001	-0.23	0.82
Animal Consumption ^g	< 0.001	< 0.001	-1.76	0.08
Intercept	0.09	0.06	1.42	0.16

*Model R*² = 0.07; *p* = 0.01; ^aBeckman et al , ^bChristenson E et al(20). ^cJablonski et al(19). ^{d,e}The World Bank. ^fInstitute for Health Metrics and Evaluation (IHME). ^gThe Food and Agricultural Organization of the United Nations (FAO).

Appendix Table 6. UVB estimate in association with crude incidence rate of CRC using linear regression

Age groups	Regression Coefficient	<i>p</i> -value	R ²
>= 75 years	-1.36	< 0.001	0.35

Appendix table 7: Modeled 25(OH)D in association with incidence of CRC ≥ 75 years of age, controlling for covariates

Covariate	Regression Coefficient	Standard Error	<i>t</i>	<i>p</i> -value
Modeled 25(OH)D, ng/ml ^a	-1.79	0.63	-2.83	0.005
Urbanization ^b	0.27	0.40	0.68	0.50
GDP ^c	0.002	0.001	3.01	0.003
Life Expectancy ^d	0.001	0.007	0.11	0.91
Smoking ^e	1.66	1.01	1.64	0.10
Animal Consumption ^f	1.40	0.34	4.15	< 0.001
Intercept	75.33	42.31	1.78	0.08

Model $R^2 = 0.62$; $p < 0.001$; ^aMohr S, B, Gorham E, D, Garland C, F, Grant W, B, Garland F, C: Low Ultraviolet B and Increased Risk of Brain Cancer: An Ecological Study of 175 Countries. *Neuroepidemiology* 2010; 35:281-290. doi: 10.1159/000314350. ^bChristenson E et al(20). ^{c,d} The World Bank. ^eInstitute for Health Metrics and Evaluation (IHME). ^f The Food and Agricultural Organization of the United Nations (FAO).

Appendix table 8: Modeled 25(OH)D in association with incidence of CRC in 60-74 years of age, controlling for covariates

Covariate	Regression Coefficient	Standard Error	<i>t</i>	<i>p</i> -value
Modeled 25(OH)D, ng/ml ^a	-1.30	0.40	-3.28	0.001
Urbanization ^b	0.04	0.25	0.17	0.87
GDP ^c	0.001	< 0.001	2.12	0.04
Life Expectancy ^d	0.001	0.005	0.19	0.85
Smoking ^e	1.73	0.63	2.74	0.007
Animal Consumption ^f	0.86	0.21	4.09	< 0.001
Intercept	52.72	26.52	1.98	0.048

*Model R*² = 0.61; *p* < 0.001; ^aMohr S, B, Gorham E, D, Garland C, F, Grant W, B, Garland F, C: Low Ultraviolet B and Increased Risk of Brain Cancer: An Ecological Study of 175 Countries. *Neuroepidemiology* 2010; 35:281-290. doi: 10.1159/000314350. ^bChristenson E et al(20). ^{c,d} The World Bank. ^eInstitute for Health Metrics and Evaluation (IHME). ^f The Food and Agricultural Organization of the United Nations (FAO).

Appendix table 9: Modeled 25(OH)D in association with incidence of CRC in 45-59 years of age, controlling for covariates

Covariate	Regression Coefficient	Standard Error	<i>t</i>	<i>p</i> -value
Modeled 25(OH)D, ng/ml ^a	-0.23	0.12	-1.92	0.06
Urbanization ^b	-0.02	0.07	-0.32	0.75
GDP ^c	< 0.001	< 0.001	2.05	0.04
Life Expectancy ^d	0.001	0.001	0.74	0.46
Smoking ^e	0.60	0.19	3.16	0.002
Animal Consumption ^f	0.29	0.06	4.57	< 0.001
Intercept	11.51	7.93	1.45	0.15

*Model R*² = 0.58; *p* < 0.001; ^aMohr S, B, Gorham E, D, Garland C, F, Grant W, B, Garland F, C: Low Ultraviolet B and Increased Risk of Brain Cancer: An Ecological Study of 175 Countries. *Neuroepidemiology* 2010; 35:281-290. doi: 10.1159/000314350. ^bChristenson E et al(20). ^{c,d} The World Bank. ^eInstitute for Health Metrics and Evaluation (IHME). ^f The Food and Agricultural Organization of the United Nations (FAO).

Appendix table 10: Modeled 25(OH)D in association with incidence of CRC in 30-44 years of age, controlling for covariates

Covariate	Regression Coefficient	Standard Error	<i>t</i>	<i>p</i> -value
Modeled 25(OH)D, ng/ml ^a	-0.02	0.02	-1.23	0.22
Urbanization ^b	0.02	0.01	1.63	0.11
GDP ^c	< 0.001	< 0.001	3.20	0.002
Life Expectancy ^d	< 0.001	< 0.001	0.25	0.80
Smoking ^e	< 0.001	0.03	0.03	0.98
Animal Consumption ^f	0.01	0.01	1.15	0.25
Intercept	3.14	1.25	2.52	0.01

*Model R*² = 0.37; *p* < 0.001; ^aMohr S, B, Gorham E, D, Garland C, F, Grant W, B, Garland F, C: Low Ultraviolet B and Increased Risk of Brain Cancer: An Ecological Study of 175 Countries. *Neuroepidemiology* 2010; 35:281-290. doi: 10.1159/000314350. ^bChristenson E et al(20). ^{c,d} The World Bank. ^eInstitute for Health Metrics and Evaluation (IHME). ^f The Food and Agricultural Organization of the United Nations (FAO).

Appendix table 11: Modeled 25(OH)D in association with incidence of CRC in 15-29 years of age, controlling for covariates

Covariate	Regression Coefficient	Standard Error	<i>t</i>	<i>p</i> -value
Modeled 25(OH)D, ng/ml ^a	-0.004	0.004	-1.16	0.25
Urbanization ^b	0.005	0.002	2.01	0.046
GDP ^c	< 0.001	< 0.001	0.26	0.79
Life Expectancy ^d	< 0.001	< 0.001	-0.39	0.69
Smoking ^e	-0.003	0.006	-0.58	0.56
Animal Consumption ^f	< 0.001	0.002	0.37	0.71
Intercept	0.58	0.25	2.29	0.02

*Model R*² = 0.10; *p* = 0.002; ^aMohr S, B, Gorham E, D, Garland C, F, Grant W, B, Garland F, C: Low Ultraviolet B and Increased Risk of Brain Cancer: An Ecological Study of 175 Countries. *Neuroepidemiology* 2010; 35:281-290. doi: 10.1159/000314350. ^bChristenson E et al(20). ^{c,d} The World Bank. ^eInstitute for Health Metrics and Evaluation (IHME). ^f The Food and Agricultural Organization of the United Nations (FAO).

Appendix table 12: Modeled 25(OH)D in association with incidence of CRC in 0-14 years of age, controlling for covariates

Covariate	Regression Coefficient	Standard Error	<i>t</i>	<i>p</i> -value
Modeled 25(OH)D, ng/ml ^a	< 0.001	< 0.001	-0.49	0.63
Urbanization ^b	< 0.001	< 0.001	0.53	0.60
GDP ^c	< 0.001	< 0.001	2.84	0.005
Life Expectancy ^d	< 0.001	< 0.001	-0.07	0.95
Smoking ^e	< 0.001	0.001	0.51	0.61
Animal Consumption ^f	< 0.001	< 0.001	-1.54	0.13
Intercept	0.02	0.04	0.50	0.62

*Model R*² = 0.06; *p* = 0.02; ^aMohr S, B, Gorham E, D, Garland C, F, Grant W, B, Garland F, C: Low Ultraviolet B and Increased Risk of Brain Cancer: An Ecological Study of 175 Countries. *Neuroepidemiology* 2010; 35:281-290. doi: 10.1159/000314350. ^bChristenson E et al(20). ^{c,d} The World Bank. ^eInstitute for Health Metrics and Evaluation (IHME). ^f The Food and Agricultural Organization of the United Nations (FAO).

APPENDIX A: List of excluded countries for which UVB estimates were unavailable.

1. Cabo Verde
2. Côte d'Ivoire
3. France, Guadeloupe
4. France, La Réunion
5. France, Martinique
6. France, New Caledonia
7. French Guyana
8. French Polynesia
9. Gaza Strip and West Bank
10. Korea, Democratic Republic of
11. Korea, Republic of
12. Maldives
13. Montenegro
14. Republic of Moldova
15. Saint Lucia
16. Sao Tome and Principe
17. South Sudan
18. The former Yugoslav Republic of Macedonia
19. Timor-Leste

APPENDIX B: List of countries excluded from the multiple linear regression model

1. Bahrain
2. Bhutan
3. Burundi
4. Comoros
5. Congo, Democratic Republic of
6. Cuba
7. Djibouti
8. Equatorial Guinea
9. Eritrea
10. Guam
11. Libya
12. Papua New Guinea
13. Puerto Rico
14. Qatar
15. Singapore
16. Somalia
17. Swaziland
18. Syrian Arab Republic

APPENDIX C: List of the codes for the representation of names of countries (ISO 3166 standard).

1. AFG Afghanistan
2. AGO Angola
3. ALB Albania
4. ARE United Arab Emirates
5. ARG Argentina
6. ARM Armenia
7. ATA Antarctica
8. AUS Australia
9. AUT Austria
10. AZE Azerbaijan
11. BDI Burundi
12. BEL Belgium
13. BEN Benin
14. BFA Burkina Faso
15. BGD Bangladesh
16. BGR Bulgaria
17. BHR Bahrain
18. BHS Bahamas
19. BIH Bosnia and Herzegovina
20. BLR Belarus
21. BLZ Belize
22. BOL Bolivia
23. BRA Brazil
24. BRB Barbados
25. BRN Brunei Darussalam
26. BTN Bhutan
27. BWA Botswana
28. CAF Central African Republic
29. CAN Canada
30. CHE Switzerland

31. CHL Chile
32. CHN China
33. CMR Cameroon
34. COD Congo, Democratic Republic of the
35. COG Congo
36. COL Colombia
37. COM Comoros
38. CRI Costa Rica
39. CUB Cuba
40. CYP Cyprus
41. CZE Czechia
42. DEU Germany
43. DJI Djibouti
44. DNK Denmark
45. DOM Dominican Republic
46. DZA Algeria
47. ECU Ecuador
48. EGY Egypt
49. ERI Eritrea
50. ESP Spain
51. EST Estonia
52. ETH Ethiopia
53. FIN Finland
54. FJI Fiji
55. FRA France
56. GAB Gabon
57. GBR United Kingdom
58. GEO Georgia
59. GHA Ghana
60. GIN Guinea
61. GMB Gambia

- 62. GNB Guinea-Bissau
- 63. GNQ Equatorial Guinea
- 64. GRC Greece
- 65. GTM Guatemala
- 66. GUM Guam
- 67. GUY Guyana
- 68. HND Honduras
- 69. HRV Croatia
- 70. HTI Haiti
- 71. HUN Hungary
- 72. IDN Indonesia
- 73. IND India
- 74. IRL Ireland
- 75. IRN Iran
- 76. IRQ Iraq
- 77. ISL Iceland
- 78. ISR Israel
- 79. ITA Italy
- 80. JAM Jamaica
- 81. JOR Jordan
- 82. JPN Japan
- 83. KAZ Kazakhstan
- 84. KEN Kenya
- 85. KGZ Kyrgyzstan
- 86. KHM Cambodia
- 87. KWT Kuwait
- 88. LAO Laos
- 89. LBN Lebanon
- 90. LBR Liberia
- 91. LBY Libya
- 92. LKA Sri Lanka

- 93. LSO Lesotho
- 94. LTU Lithuania
- 95. LUX Luxembourg
- 96. LVA Latvia
- 97. MAR Morocco
- 98. MDG Madagascar
- 99. MEX Mexico
- 100. MLI Mali
- 101. MLT Malta
- 102. MMR Myanmar
- 103. MNG Mongolia
- 104. MOZ Mozambique
- 105. MRT Mauritania
- 106. MUS Mauritius
- 107. MWI Malawi
- 108. MYS Malaysia
- 109. NAM Namibia
- 110. NER Niger
- 111. NGA Nigeria
- 112. NIC Nicaragua
- 113. NLD Netherlands
- 114. NOR Norway
- 115. NPL Nepal
- 116. NZL New Zealand
- 117. OMN Oman
- 118. PAK Pakistan
- 119. PAN Panama
- 120. PER Peru
- 121. PHL Philippines
- 122. PNG Papua New Guinea
- 123. POL Poland

- 124. PRI Puerto Rico
- 125. PRT Portugal
- 126. PRY Paraguay
- 127. QAT Qatar
- 128. ROU Romania
- 129. RUS Russian Federation
- 130. RWA Rwanda
- 131. SAU Saudi Arabia
- 132. SDN Sudan
- 133. SEN Senegal
- 134. SGP Singapore
- 135. SLB Solomon Islands
- 136. SLE Sierra Leone
- 137. SLV El Salvador
- 138. SOM Somalia
- 139. SRB Serbia
- 140. SUR Suriname
- 141. SVK Slovakia
- 142. SVN Slovenia
- 143. SWE Sweden
- 144. SYR Syrian Arab Republic
- 145. TCD Chad
- 146. TGO Togo
- 147. THA Thailand
- 148. TJK Tajikistan
- 149. TKM Turkmenistan
- 150. TTO Trinidad and Tobago
- 151. TUN Tunisia
- 152. TUR Turkey
- 153. TZA Tanzania
- 154. UGA Uganda

- 155. UKR Ukraine
- 156. URY Uruguay
- 157. USA United States of America
- 158. UZB Uzbekistan
- 159. VEN Venezuela
- 160. VNM Viet Nam
- 161. VUT Vanuatu
- 162. WSM Samoa
- 163. YEM Yemen
- 164. ZAF South Africa
- 165. ZMB Zambia
- 166. ZWE Zimbabwe