**CO-INHERITANCE OF VARIATION IN ALL-CAUSE MORTALITY**

**AND BIOCHEMICAL RISK FACTORS**

**Supplementary Tables**

**Supplementary Table 1.**  Descriptive statistics for study participants, by sex and study.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Male** | | | | | | | | | **Female** | | | | | | | | |
|  | **‘SSAGA’ Study**  **(1993-1996)** | | | **‘Anxiety’ Study**  **1996-1992** | | | **‘NAG’ Study**  **2001-2005** | | | **‘SSAGA’ Study**  **(1993-1996)** | | | **‘Anxiety’ Study**  **1996-1992** | | | **‘NAG’ Study**  **2001-2005** | | |
|  | N | Mean | SD | N | Mean | SD | N | Mean | SD | N | Mean | SD | N | Mean | SD | N | Mean | SD |
| Age (years) | 1117 | 44.9 | 11.1 | 741 | 48.4 | 15.0 | 3731 | 51.1 | 13.8 | 2220 | 46.5 | 12.0 | 1146 | 47.0 | 14.9 | 4512 | 50.4 | 14.0 |
| BMI (kg/m2) | 1080 | 25.66 | 3.47 | - | - | - | 2992 | 27.08 | 4.41 | 2157 | 24.96 | 4.67 | - | - | - | 3772 | 26.61 | 5.63 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Creatinine (μmol/l) | 888 | 95.3 | 12.9 | 748 | 104.6 | 20.4 | 3766 | 101.1 | 18.5 | 1603 | 76.8 | 11.5 | 1151 | 83.2 | 16.2 | 4552 | 79.9 | 15.9 |
| Urea (mmol/l) | 888 | 6.22 | 1.40 | 747 | 6.83 | 1.72 | 3762 | 6.71 | 1.68 | 1604 | 5.33 | 1.40 | 1151 | 5.94 | 1.63 | 4546 | 6.01 | 1.64 |
| Uric acid (mmol/l) | 916 | 0.383 | 0.077 | 748 | 0.320 | 0.070 | 3769 | 0.346 | 0.076 | 1643 | 0.283 | 0.072 | 1153 | 0.249 | 0.067 | 4552 | 0.262 | 0.071 |
| Calcium (mmol/l) | 888 | 2.41 | 0.089 | - | - | - | 3750 | 2.46 | 0.162 | 1603 | 2.39 | 0.095 | - | - | - | 4547 | 2.44 | 0.152 |
| Total Protein (g/l) | 887 | 74.4 | 4.3 | 725 | 77.4 | 5.0 | 3720 | 77.6 | 4.6 | 1599 | 74.1 | 4.5 | 1143 | 77.6 | 4.8 | 4503 | 77.0 | 4.6 |
| Albumin (g/l) | 888 | 48.9 | 3.0 | 748 | 48.1 | 3.1 | 3760 | 48.8 | 3.0 | 1603 | 47.2 | 3.1 | 1153 | 46.7 | 2.9 | 4550 | 47.5 | 2.9 |
| Globulins (g/l) | 886 | 25.5 | 3.6 | 725 | 29.4 | 3.9 | 3712 | 28.8 | 3.9 | 1599 | 26.9 | 3.6 | 1143 | 30.9 | 3.8 | 4501 | 29.6 | 3.7 |
| Bilirubin (g/l) | 883 | 9.7 | 5.8 | 744 | 10.1 | 5.3 | 3738 | 9.9 | 5.5 | 1601 | 7.6 | 4.2 | 1147 | 7.9 | 4.3 | 4529 | 7.9 | 4.4 |
| *log Bilirubin* |  | *0.9330* | *0.2121* |  | *0.9555* | *0.1990* |  | *0.9450* | *0.2111* |  | *0.8347* | *0.1996* |  | *0.8524* | *0.1932* |  | *0.8494* | *0.2033* |
| ALP (u/l) | 889 | 70.2 | 21.2 | - | - | - | 3761 | 77.9 | 21.3 | 1602 | 65.8 | 21.9 | - | - | - | 4551 | 75.1 | 24.8 |
| AST (u/l) | 1046 | 25.1 | 13.2 | 747 | 34.6 | 14.7 | 3769 | 27.3 | 11.3 | 2008 | 21.1 | 7.2 | 1153 | 29.4 | 9.5 | 4553 | 22.3 | 9.3 |
| *log AST* |  | *1.3715* | *0.1443* |  | *1.5184* | *0.1265* |  | *1.4116* | *0.1364* |  | *1.3018* | *0.1340* |  | *1.4503* | *0.1209* |  | *1.3276* | *0.1278* |
| ALT (u/l) | 1046 | 23.9 | 26.8 | 747 | 33.4 | 36.5 | 3769 | 30.9 | 19.9 | 2008 | 15.8 | 9.4 | 1153 | 23.2 | 14.3 | 4553 | 20.5 | 12.4 |
| *log ALT* |  | *1.3032* | *0.2394* |  | *1.4590* | *0.2106* |  | *1.4343* | *0.2107* |  | *1.1412* | *0.2201* |  | *1.3164* | *0.1909* |  | *1.2663* | *0.1826* |
| GGT (u/l) | 1046 | 30.6 | 32.9 | 748 | 35.2 | 45.6 | 3769 | 39.5 | 44.0 | 2008 | 18.3 | 16.5 | 1153 | 22.1 | 22.4 | 4551 | 24.2 | 27.9 |
| *log GGT* |  | *1.3702* | *0.2869* |  | *1.4175* | *0.2972* |  | *1.4803* | *0.2845* |  | *1.1645* | *0.2715* |  | *1.2427* | *0.2698* |  | *1.2801* | *0.2658* |
| BCHE (u/l) |  | - | - | 748 | 9403 | 1950 | 3768 | 9750 | 1941 |  | - | - | 1153 | 8444 | 1956 | 4552 | 8802 | 1923 |
| Total cholesterol (mmol/l) | 1118 | 5.68 | 1.05 | 748 | 5.63 | 1.10 | 3769 | 5.70 | 1.06 | 2221 | 5.63 | 1.09 | 1153 | 5.62 | 1.04 | 4552 | 5.65 | 1.04 |
| LDL-C (mmol/l) | 994 | 3.52 | 0.92 | 707 | 3.30 | 0.93 | 3530 | 3.36 | 0.93 | 2118 | 3.38 | 0.99 | 1127 | 3.20 | 0.90 | 4472 | 3.22 | 0.92 |
| HDL-C (mmol/l) | 1062 | 1.23 | 0.28 | 748 | 1.36 | 0.37 | 3769 | 1.35 | 0.37 | 2155 | 1.55 | 0.39 | 1153 | 1.65 | 0.45 | 4552 | 1.66 | 0.42 |
| Triglyceride (mmol/l) | 1120 | 2.18 | 1.55 | 748 | 2.20 | 1.43 | 3769 | 2.26 | 1.42 | 2221 | 1.55 | 1.00 | 1153 | 1.71 | 1.05 | 4552 | 1.69 | 0.96 |
| *log Triglyceride* |  | *0.2616* | *0.2515* |  | *0.2773* | *0.2335* |  | *0.2898* | *0.2312* |  | *0.1237* | *0.2301* |  | *0.1748* | *0.2131* |  | *0.1735* | *0.2144* |
| Glucose (mmol/l) | 878 | 5.28 | 1.22 | - | - | - | 2571 | 5.33 | 2.00 | 1580 | 5.11 | 1.08 | - | - | - | 3274 | 4.93 | 1.54 |
| C-reactive protein (mg/l) |  | - | - | 748 | 2.90 | 6.30 | 3758 | 3.34 | 5.78 | - | - | - | 1153 | 4.01 | 6.63 | 4544 | 4.21 | 7.64 |
| *log CRP* |  | - | - |  | *0.1408* | *0.5712* |  | *0.2581* | *0.4830* |  | - | - |  | *0.2616* | *0.6001* |  | *0.3253* | *0.5389* |
| Iron (μmol/l) | 1030 | 18.16 | 5.75 | - | - | - | 3768 | 21.52 | 6.47 | 2077 | 17.4 | 6.8 | - | - | - | 4552 | 19.1 | 6.5 |
| Transferrin (g/l) | 1030 | 2.70 | 0.40 | 748 | 2.46 | 0.35 | 3765 | 2.69 | 0.35 | 2076 | 2.89 | 0.51 | 1153 | 2.67 | 0.45 | 4548 | 2.86 | 0.45 |
| Saturation (%) | 1030 | 27.3 | 9.2 | - | - | - | 3766 | 32.4 | 10.6 | 2076 | 24.7 | 10.6 | - | - | - | 4548 | 27.4 | 10.2 |
| Ferritin (mg/l) | 1030 | 240 | 180 | 748 | 218 | 227 | 3766 | 260 | 191 | 2077 | 99 | 108 | 1153 | 94 | 109 | 4552 | 113 | 114 |
| *log Ferritin* |  | *2.2571* | *0.3540* |  | *2.1739* | *0.4113* |  | *2.3013* | *0.3410* |  | *1.8151* | *0.4177* |  | *1.7727* | *0.4354* |  | *1.8921* | *0.3908* |

**Supplementary Table 2.** Correlations between age-and sex-adjusted biomarker standardised residuals and polygenic risk scores. Standard errors and p-values are corrected for related subjects. PRS, polygenic risk score; ALP, alkaline phosphatase; AST, aspartate aminotransferase; ALT, alanine aminotransferase; GGT, gamma-glutamyl transferase; BCHE, butyrylcholinesterase; LDL-C, HDL-C, low- and high-density lipoprotein cholesterol; CRP, C-reactive protein.

|  |  | PRS1 | PRS2 | PRS3 | PRS4 | PRS5 | PRS6 | PRS7 | PRS8 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Creatinine | Coefficient | -0.0031 | 0.0133 | 0.0188 | -0.0015 | 0.0010 | 0.0006 | -0.0047 | -0.0040 |
|  | Robust SE | 0.0106 | 0.0105 | 0.0099 | 0.0101 | 0.0102 | 0.0102 | 0.0104 | 0.0105 |
|  | p-value | 0.773 | 0.205 | 0.059 | 0.882 | 0.920 | 0.956 | 0.653 | 0.701 |
| Urea | Coefficient | -0.0139 | -0.0078 | 0.0025 | -0.0073 | -0.0099 | -0.0102 | -0.0110 | -0.0110 |
|  | Robust SE | 0.0103 | 0.0104 | 0.0098 | 0.0103 | 0.0103 | 0.0102 | 0.0103 | 0.0103 |
|  | p-value | 0.179 | 0.453 | 0.798 | 0.480 | 0.336 | 0.317 | 0.284 | 0.285 |
| Urate | Coefficient | 0.0065 | 0.0220 | 0.0248 | 0.0244 | 0.0345 | 0.0352 | 0.0337 | 0.0346 |
|  | Robust SE | 0.0115 | 0.0112 | 0.0104 | 0.0111 | 0.0110 | 0.0112 | 0.0111 | 0.0110 |
|  | p-value | 0.572 | 0.050 | 0.017 | 0.027 | 0.0018 | 0.0017 | 0.0023 | 0.0017 |
| Calcium | Coefficient | 0.0114 | 0.0040 | -0.0153 | -0.0127 | 0.0014 | 0.0053 | 0.0082 | 0.0069 |
|  | Robust SE | 0.0112 | 0.0115 | 0.0111 | 0.0109 | 0.0108 | 0.0107 | 0.0107 | 0.0107 |
|  | p-value | 0.306 | 0.725 | 0.169 | 0.243 | 0.894 | 0.618 | 0.445 | 0.517 |
| Total protein | Coefficient | -0.0236 | -0.0145 | 0.0037 | 0.0118 | 0.0233 | 0.0223 | 0.0194 | 0.0189 |
|  | Robust SE | 0.0108 | 0.0109 | 0.0104 | 0.0106 | 0.0106 | 0.0107 | 0.0106 | 0.0106 |
|  | p-value | 0.030 | 0.184 | 0.719 | 0.268 | 0.028 | 0.037 | 0.069 | 0.076 |
| Albumin | Coefficient | -0.0058 | -0.0032 | -0.0077 | -0.0143 | -0.0152 | -0.0163 | -0.0148 | -0.0148 |
|  | Robust SE | 0.0106 | 0.0107 | 0.0102 | 0.0104 | 0.0105 | 0.0105 | 0.0104 | 0.0104 |
|  | p-value | 0.582 | 0.767 | 0.452 | 0.168 | 0.147 | 0.121 | 0.154 | 0.155 |
| Globulins | Coefficient | -0.0217 | -0.0133 | 0.0123 | 0.0267 | 0.0399 | 0.0385 | 0.0341 | 0.0334 |
|  | Robust SE | 0.0112 | 0.0113 | 0.0109 | 0.0110 | 0.0110 | 0.0111 | 0.0111 | 0.0111 |
|  | p-value | 0.052 | 0.239 | 0.256 | 0.015 | 3.09 x 10-4 | 5.35 x 10-4 | 0.0021 | 0.0026 |
| Bilirubin | Coefficient | 0.0083 | -0.0110 | -0.0036 | -0.0258 | -0.0143 | -0.0157 | -0.0257 | -0.0254 |
|  | Robust SE | 0.0114 | 0.0114 | 0.0112 | 0.0115 | 0.0116 | 0.0117 | 0.0115 | 0.0115 |
|  | p-value | 0.466 | 0.333 | 0.751 | 0.025 | 0.216 | 0.179 | 0.026 | 0.027 |
| ALP | Coefficient | 0.0010 | -0.0104 | 0.0129 | 0.0164 | 0.0378 | 0.0389 | 0.0349 | 0.0350 |
|  | Robust SE | 0.0121 | 0.0124 | 0.0122 | 0.0124 | 0.0125 | 0.0123 | 0.0120 | 0.0120 |
|  | p-value | 0.931 | 0.399 | 0.291 | 0.187 | 0.0025 | 0.0016 | 0.0038 | 0.0035 |
| AST | Coefficient | 0.0008 | 0.0035 | 0.0056 | -0.0068 | 0.0013 | 0.0003 | -0.0025 | -0.0020 |
|  | Robust SE | 0.0102 | 0.0103 | 0.0104 | 0.0104 | 0.0105 | 0.0103 | 0.0103 | 0.0103 |
|  | p-value | 0.935 | 0.733 | 0.589 | 0.512 | 0.902 | 0.974 | 0.809 | 0.845 |
| ALT | Coefficient | 0.0062 | 0.0044 | 0.0069 | -0.0019 | 0.0136 | 0.0137 | 0.0138 | 0.0141 |
|  | Robust SE | 0.0108 | 0.0109 | 0.0106 | 0.0107 | 0.0108 | 0.0107 | 0.0106 | 0.0105 |
|  | p-value | 0.569 | 0.690 | 0.516 | 0.860 | 0.208 | 0.200 | 0.192 | 0.180 |
| AST/ALT | Coefficient | -0.0058 | -0.0071 | -0.0046 | -0.0023 | -0.0168 | -0.0167 | -0.0191 | -0.0193 |
|  | Robust SE | 0.0112 | 0.0111 | 0.0107 | 0.0108 | 0.0107 | 0.0107 | 0.0107 | 0.0108 |
|  | p-value | 0.604 | 0.523 | 0.666 | 0.831 | 0.116 | 0.121 | 0.076 | 0.073 |
| GGT | Coefficient | 0.0145 | 0.0102 | 0.0135 | 0.0023 | 0.0251 | 0.0260 | 0.0268 | 0.0265 |
|  | Robust SE | 0.0111 | 0.0110 | 0.0105 | 0.0108 | 0.0109 | 0.0108 | 0.0107 | 0.0107 |
|  | p-value | 0.194 | 0.353 | 0.201 | 0.834 | 0.021 | 0.016 | 0.013 | 0.014 |
| BCHE | Coefficient | 0.0297 | 0.0333 | 0.0064 | 0.0128 | 0.0087 | 0.0148 | 0.0085 | 0.0082 |
|  | Robust SE | 0.0123 | 0.0119 | 0.0114 | 0.0120 | 0.0119 | 0.0118 | 0.0119 | 0.0119 |
|  | p-value | 0.016 | 0.0052 | 0.574 | 0.286 | 0.464 | 0.209 | 0.477 | 0.493 |
| Total cholesterol | Coefficient | 0.0438 | 0.0326 | 0.0098 | 0.0173 | 0.0268 | 0.0251 | 0.0270 | 0.0266 |
| Robust SE | 0.0111 | 0.0108 | 0.0103 | 0.0104 | 0.0107 | 0.0107 | 0.0105 | 0.0105 |
| p-value | 8.36 x 10-5 | 0.0024 | 0.343 | 0.098 | 0.012 | 0.019 | 0.010 | 0.012 |
| LDL-C | Coefficient | 0.0507 | 0.0428 | 0.0193 | 0.0201 | 0.0314 | 0.0314 | 0.0308 | 0.0312 |
|  | Robust SE | 0.0114 | 0.0110 | 0.0106 | 0.0107 | 0.0108 | 0.0108 | 0.0107 | 0.0107 |
|  | p-value | 8.49 x 10-6 | 1.03 x 10-4 | 0.069 | 0.061 | 0.0037 | 0.0038 | 0.0039 | 0.0035 |
| HDL-C | Coefficient | -0.0337 | -0.0434 | -0.0231 | -0.0326 | -0.0313 | -0.0307 | -0.0239 | -0.0249 |
|  | Robust SE | 0.0112 | 0.0114 | 0.0110 | 0.0110 | 0.0107 | 0.0107 | 0.0108 | 0.0108 |
|  | p-value | 0.0026 | 1.45 x 10-4 | 0.035 | 0.0031 | 0.0034 | 0.0042 | 0.027 | 0.021 |
| Triglyceride | Coefficient | 0.0196 | 0.0225 | 0.0082 | 0.0331 | 0.0346 | 0.0313 | 0.0318 | 0.0312 |
|  | Robust SE | 0.0113 | 0.0109 | 0.0106 | 0.0104 | 0.0106 | 0.0106 | 0.0105 | 0.0105 |
|  | p-value | 0.082 | 0.040 | 0.439 | 0.0015 | 0.0011 | 0.0032 | 0.0025 | 0.0029 |
| Glucose | Coefficient | 0.0033 | 0.0091 | 0.0005 | -0.0015 | 0.0154 | 0.0124 | 0.0122 | 0.0108 |
|  | Robust SE | 0.0129 | 0.0119 | 0.0127 | 0.0131 | 0.0130 | 0.0125 | 0.0125 | 0.0125 |
|  | p-value | 0.791 | 0.446 | 1.000 | 0.920 | 0.237 | 0.320 | 0.330 | 0.390 |
| CRP | Coefficient | -0.0658 | -0.0354 | -0.0125 | 0.0187 | 0.0258 | 0.0305 | 0.0326 | 0.0322 |
|  | Robust SE | 0.0117 | 0.0114 | 0.0107 | 0.0111 | 0.0112 | 0.0114 | 0.0115 | 0.0115 |
|  | p-value | 1.99 x 10-8 | 0.0019 | 0.242 | 0.093 | 0.021 | 0.0075 | 0.0046 | 0.0053 |
| Iron | Coefficient | 0.0218 | 0.0053 | 0.0026 | 0.0079 | 0.0128 | 0.0126 | 0.0133 | 0.0134 |
|  | Robust SE | 0.0109 | 0.0105 | 0.0106 | 0.0109 | 0.0108 | 0.0107 | 0.0106 | 0.0106 |
|  | p-value | 0.046 | 0.615 | 0.804 | 0.468 | 0.236 | 0.240 | 0.210 | 0.206 |
| Transferrin | Coefficient | -0.0213 | -0.0196 | -0.0120 | 0.0008 | 0.0038 | 0.0077 | 0.0057 | 0.0057 |
|  | Robust SE | 0.0109 | 0.0110 | 0.0108 | 0.0108 | 0.0110 | 0.0110 | 0.0107 | 0.0108 |
|  | p-value | 0.051 | 0.076 | 0.270 | 0.938 | 0.728 | 0.483 | 0.597 | 0.595 |
| Saturation | Coefficient | 0.0269 | 0.0111 | 0.0069 | 0.0083 | 0.0112 | 0.0109 | 0.0123 | 0.0125 |
|  | Robust SE | 0.0111 | 0.0111 | 0.0109 | 0.0114 | 0.0115 | 0.0114 | 0.0111 | 0.0111 |
|  | p-value | 0.015 | 0.317 | 0.525 | 0.468 | 0.328 | 0.338 | 0.267 | 0.259 |
| Ferritin | Coefficient | 0.0212 | 0.0213 | 0.0107 | 0.0139 | 0.0158 | 0.0223 | 0.0237 | 0.0239 |
|  | Robust SE | 0.0108 | 0.0104 | 0.0100 | 0.0102 | 0.0102 | 0.0101 | 0.0101 | 0.0101 |
|  | p-value | 0.049 | 0.042 | 0.282 | 0.176 | 0.119 | 0.028 | 0.019 | 0.018 |

**Supplementary Table 3.**

**Part 1**. Comparison of adjusted biochemical test results between groups with and without parental survival information.

1. Mothers’ vital status data (alive or died) available (coded as 0, Known) or missing (coded as 1, Unknown/Missing)

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Mother death unknown | | Urate | Albumin | ALP | GGT | LDL-C | HDL-C | Triglycerides | CRP | Glucose |
| .00 (Known) | Mean | -0.011 | 0.002 | -0.010 | -0.010 | 0.015 | 0.009 | -0.002 | -0.005 | -0.010 |
| N | 10533 | 10485 | 8797 | 10962 | 10814 | 11223 | 11223 | 9607 | 7027 |
| Std. Deviation | 0.980 | 1.004 | 1.000 | 0.992 | 0.997 | 0.991 | 1.005 | 1.010 | 0.940 |
| Std. Error of Mean | 0.010 | 0.010 | 0.011 | 0.009 | 0.010 | 0.009 | 0.009 | 0.010 | 0.011 |
| 1.00 (Unknown/Missing) | Mean | 0.064 | -0.009 | 0.051 | 0.057 | -0.090 | -0.053 | 0.011 | 0.030 | 0.061 |
| N | 1833 | 1814 | 1705 | 1888 | 1846 | 1914 | 1914 | 1715 | 1157 |
| Std. Deviation | 1.107 | 0.974 | 0.997 | 1.042 | 1.014 | 1.049 | 0.971 | 0.938 | 1.304 |
| Std. Error of Mean | 0.026 | 0.023 | 0.024 | 0.024 | 0.024 | 0.024 | 0.022 | 0.023 | 0.038 |
| Difference in mean |  | -0.075 | 0.010 | -0.061 | -0.067 | 0.105 | 0.062 | -0.013 | -0.035 | -0.071 |
| p-value |  | 0.003 | 0.682 | 0.021 | 0.0075 | 3.14E-05 | 0.013 | 0.599 | 0.180 | 0.026 |

1. Fathers’ vital status data (alive or died) available (coded as 0, Known) or missing (coded as 1, Unknown/Missing)

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Father death unknown | | Urate | Albumin | ALP | GGT | LDL-C | HDL-C | Triglycerides | CRP | Glucose |
| .00 (Not unknown) | Mean | -0.011 | 0.001 | -0.009 | -0.011 | 0.015 | 0.008 | -0.002 | -0.006 | -0.012 |
| N | 10482 | 10433 | 8755 | 10910 | 10764 | 11171 | 11171 | 9566 | 7004 |
| Std. Deviation | 0.978 | 1.006 | 1.001 | 0.991 | 0.994 | 0.991 | 1.005 | 1.009 | 0.938 |
| Std. Error of Mean | 0.010 | 0.010 | 0.011 | 0.009 | 0.010 | 0.009 | 0.010 | 0.010 | 0.011 |
| 1.00 (Unknown/Missing) | Mean | 0.0613 | -0.006 | 0.045 | 0.061 | -0.083 | -0.047 | 0.009 | 0.032 | 0.071 |
| N | 1884 | 1866 | 1747 | 1940 | 1896 | 1966 | 1966 | 1756 | 1180 |
| Std. Deviation | 1.111 | 0.967 | 0.992 | 1.048 | 1.027 | 1.050 | 0.967 | 0.946 | 1.306 |
| Std. Error of Mean | 0.026 | 0.022 | 0.024 | 0.024 | 0.024 | 0.024 | 0.022 | 0.023 | 0.038 |
| Difference in mean |  | -0.072 | 0.008 | -0.054 | -0.072 | 0.097 | 0.056 | -0.010 | -0.038 | -0.083 |
| p-value |  | 0.0038 | 0.763 | 0.039 | 0.0035 | 9.49E-05 | 0.023 | 0.682 | 0.147 | 0.0081 |

**Part 2**. Comparison of parental survival between groups with and without biochemical test information (selected on presence or absence of triglyceride results, which was the test with the largest number of results). Availability of triglyceride results was coded as 0 if missing and 1 if available.

There was no significant difference in reported survival for either mothers or fathers between participants with and without triglyceride results.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Mothers' survival | B | SE | Sig. | HR | 95.0% CI for HR | |
| Lower | Upper |
| Triglyceride missing | 0.011 | 0.025 | 0.672 | 1.011 | 0.962 | 1.061 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Fathers' survival | B | SE | Sig. | HR | 95.0% CI for HR | |
| Lower | Upper |
| Triglyceride missing | 0.020 | 0.020 | 0.315 | 1.020 | 0.981 | 1.061 |

**Part 3**. Comparison of Hazard Ratios (HR) for parental survival by age of study participants at the time of blood collection. Participants were divided at the approximate median age at time of blood collection and associations between the age- and sex-adjusted standardised biochemical test results and survival of their mothers and fathers were estimated separately for participants aged up to 49 years and those 50 or over.

For all tests except urate (in the fathers but not the mothers) the 95% confidence intervals for the HR estimates overlapped.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Mothers survival | |  |  |  |  |  |  |  | Fathers survival | |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Age | | B | SE | Sig. | HR | 95.0% CI for HR | |  | Age | | B | SE | Sig. | HR | 95.0% CI for HR | |
| Lower | Upper |  | Lower | Upper |
| Up to 49 | Urate | 0.078 | 0.038 | 0.040 | 1.081 | 1.003 | 1.164 |  | Up to 49 | Urate | 0.123 | 0.024 | 3.98E-07 | 1.131 | 1.079 | 1.186 |
| 50 and above | Urate | 0.077 | 0.020 | 1.46E-04 | 1.080 | 1.038 | 1.124 |  | 50 and above | Urate | 0.039 | 0.018 | 0.030 | 1.040 | 1.004 | 1.077 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Age | | B | SE | Sig. | HR | 95.0% CI for HR | |  | Age | | B | SE | Sig. | HR | 95.0% CI for HR | |
| Lower | Upper |  | Lower | Upper |
| Up to 49 | Albumin | -0.025 | 0.036 | 0.480 | 0.975 | 0.909 | 1.046 |  | Up to 49 | Albumin | -0.045 | 0.023 | 0.050 | 0.956 | 0.915 | 1.000 |
| 50 and above | Albumin | -0.078 | 0.023 | 5.91E-04 | 0.925 | 0.884 | 0.967 |  | 50 and above | Albumin | -0.015 | 0.020 | 0.450 | 0.985 | 0.947 | 1.024 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Age | | B | SE | Sig. | HR | 95.0% CI for HR | |  | Age | | B | SE | Sig. | HR | 95.0% CI for HR | |
| Lower | Upper |  | Lower | Upper |
| Up to 49 | ALP | -0.046 | 0.039 | 0.233 | 0.955 | 0.885 | 1.030 |  | Up to 49 | ALP | 0.039 | 0.025 | 0.118 | 1.040 | 0.990 | 1.092 |
| 50 and above | ALP | 0.037 | 0.025 | 0.132 | 1.038 | 0.989 | 1.089 |  | 50 and above | ALP | 0.048 | 0.021 | 0.019 | 1.050 | 1.008 | 1.093 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Age | | B | SE | Sig. | HR | 95.0% CI for HR | |  | Age | | B | SE | Sig. | HR | 95.0% CI for HR | |
| Lower | Upper |  | Lower | Upper |
| Up to 49 | GGT | 0.059 | 0.034 | 0.085 | 1.061 | 0.992 | 1.135 |  | Up to 49 | GGT | 0.071 | 0.022 | 0.0014 | 1.074 | 1.028 | 1.121 |
| 50 and above | GGT | 0.015 | 0.021 | 0.469 | 1.016 | 0.974 | 1.059 |  | 50 and above | GGT | 0.037 | 0.018 | 0.044 | 1.038 | 1.001 | 1.075 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Age | | B | SE | Sig. | HR | 95.0% CI for HR | |  | Age | | B | SE | Sig. | HR | 95.0% CI for HR | |
| Lower | Upper |  | Lower | Upper |
| Up to 49 | LDL-C | 0.023 | 0.036 | 0.512 | 1.024 | 0.955 | 1.098 |  | Up to 49 | LDL-C | 0.086 | 0.023 | 2.03E-04 | 1.090 | 1.041 | 1.140 |
| 50 and above | LDL-C | -0.037 | 0.021 | 0.082 | 0.964 | 0.925 | 1.005 |  | 50 and above | LDL-C | 0.033 | 0.019 | 0.076 | 1.033 | 0.997 | 1.072 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Age | | B | SE | Sig. | HR | 95.0% CI for HR | |  | Age | | B | SE | Sig. | HR | 95.0% CI for HR | |
| Lower | Upper |  | Lower | Upper |
| Up to 49 | HDL-C | -0.096 | 0.037 | 0.0091 | 0.909 | 0.846 | 0.976 |  | Up to 49 | HDL-C | -0.102 | 0.024 | 1.55E-05 | 0.903 | 0.862 | 0.946 |
| 50 and above | HDL-C | -0.092 | 0.021 | 1.10E-05 | 0.913 | 0.876 | 0.951 |  | 50 and above | HDL-C | -0.041 | 0.018 | 0.020 | 0.960 | 0.927 | 0.994 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Age | | B | SE | Sig. | HR | 95.0% CI for HR | |  | Age | | B | SE | Sig. | HR | 95.0% CI for HR | |
| Lower | Upper |  | Lower | Upper |
| Up to 49 | Triglycerides | 0.065 | 0.033 | 0.051 | 1.067 | 1.000 | 1.138 |  | Up to 49 | Triglycerides | 0.074 | 0.022 | 6.59E-04 | 1.077 | 1.032 | 1.124 |
| 50 and above | Triglycerides | 0.055 | 0.022 | 0.013 | 1.056 | 1.012 | 1.102 |  | 50 and above | Triglycerides | 0.030 | 0.019 | 0.102 | 1.031 | 0.994 | 1.069 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Age | | B | SE | Sig. | HR | 95.0% CI for HR | |  | Age | | B | SE | Sig. | HR | 95.0% CI for HR | |
| Lower | Upper |  | Lower | Upper |
| Up to 49 | CRP | 0.113 | 0.037 | 0.0020 | 1.120 | 1.042 | 1.203 |  | Up to 49 | CRP | 0.071 | 0.023 | 0.0024 | 1.074 | 1.026 | 1.125 |
| 50 and above | CRP | 0.062 | 0.026 | 0.018 | 1.064 | 1.011 | 1.120 |  | 50 and above | CRP | 0.030 | 0.023 | 0.194 | 1.031 | 0.985 | 1.078 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Age | | B | SE | Sig. | HR | 95.0% CI for HR | |  | Age | | B | SE | Sig. | HR | 95.0% CI for HR | |
| Lower | Upper |  | Lower | Upper |
| Up to 49 | Glucose | 0.078 | 0.043 | 0.068 | 1.081 | 0.994 | 1.175 |  | Up to 49 | Glucose | 0.077 | 0.028 | 0.0064 | 1.080 | 1.022 | 1.142 |
| 50 and above | Glucose | -0.015 | 0.024 | 0.537 | 0.985 | 0.940 | 1.033 |  | 50 and above | Glucose | 0.018 | 0.022 | 0.407 | 1.018 | 0.975 | 1.064 |