**Supplementary materials**

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**Blood lipid metabolism and risk of gallstone disease: a** **multicenter cross-sectional study and systematic review and meta-analysis**

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**Appendix Table 1.** Associations between blood lipid levels and gallstones or cholecystectomy in our cross-sectional study.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **First affiliated Hospital of Chongqing Medical**  **University Jinshan Hospital** | | **The People’s Hospital of Kaizhou District of Chongqing** | | **Beijing Xiaotangshan Hospital** | | **Tianjin Medical University Cancer Institute and Hospital** | | **Pooled** | | |
|  |  | **OR (95%CI)** | ***P*** | **OR (95%CI)** | ***P*** | **OR (95%CI)** | ***P*** | **OR (95%CI)** | ***P*** | **OR (95%CI)** | ***P*** | **I-squared** |
| **Gallstones** | **TC, mmol/L** |  |  |  |  |  |  |  |  |  |  |  |
|  | <3.1 | Ref |  | Ref |  | Ref |  |  |  | Ref |  |  |
|  | 3.1-5.7 | 0.829 (0.645, 1.066) | 0.144 | 1.092 (0.770, 1.549) | 0.622 | 0.88 (0.619, 1.250) | 0.476 |  |  | 0.903 (0.757, 1.077) | 0.256 | 0.0% |
|  | >5.7 | 0.816 (0.627, 1.061) | 0.129 | 0.987 (0.686, 1.419) | 0.943 | 0.889 (0.613, 1.288) | 0.533 | 0.927 (0.735, 1.169) | 0.522 | 0.895 (0.775, 1.034) | 0.133 | 0.0% |
|  | **TG, mmol/L** |  |  |  |  |  |  |  |  |  |  |  |
|  | <0.4 | Ref |  | Ref |  | Ref |  |  |  | Ref |  |  |
|  | 0.4-1.7 | **0.549 (0.362, 0.831)** | **0.005** | 0.978 (0.310, 3.087) | 0.969 | 0.762 (0.388, 1.495) | 0.429 | Ref |  | **0.627 (0.447, 0.879)** | **0.007** | **0.0%** |
|  | >1.7 | **0.598 (0.393, 0.911)** | **0.017** | 1.029 (0.325, 3.256) | 0.961 | 0.733 (0.371, 1.449) | 0.372 | 0.926 (0.709, 1.208) | 0.570 | 0.815 (0.660, 1.005) | 0.056 | 6.7% |
|  | **LDL-C, mmol/L** |  |  |  |  |  |  |  |  |  |  |  |
|  | <2.07 | Ref |  | Ref |  | Ref |  |  |  | Ref |  |  |
|  | 2.07-3.1 | 0.994 (0.900, 1.099) | 0.913 | 0.988 (0.905, 1.079) | 0.792 | 0.954 (0.811, 1.122) | 0.569 |  |  | 0.985 (0.927, 1.047) | 0.636 | 0.0% |
|  | >3.1 | 1.064 (0.955, 1.185) | 0.261 | **1.134 (1.005, 1.279)** | **0.041** | 0.941 (0.794, 1.115) | 0.481 |  |  | 1.065 (0.990, 1.145) | 0.091 | 35.2% |
|  | **HDL-C, mmol/L** |  |  |  |  |  |  |  |  |  |  |  |
|  | <0.9 | Ref |  | Ref |  | Ref |  |  |  | Ref |  |  |
|  | 0.9-2.0 | **0.815 (0.718, 0.925)** | **0.001** | **0.846 (0.728, 0.983)** | **0.029** | 0.983 (0.822, 1.175) | 0.849 |  |  | **0.861 (0.790, 0.937)** | **0.001** | **30.8%** |
|  | >2.0 | **0.580 (0.475, 0.707)** | **0.000** | **0.734 (0.594, 0.907)** | **0.004** | 0.847 (0.621, 1.154) | 0.292 |  |  | **0.680 (0.596, 0.775)** | **0** | **59.1%** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | **TC, per unit** | 1.022 (0.925, 1.13) | 0.664 | 0.926 (0.849, 1.010) | 0.082 | **1.187 (1.041, 1.355)** | **0.011** | 0.990 (0.885, 1.106) | 0.854 | 1.003 (0.952, 1.056) | 0.916 | 69.1% |
|  | **TG, per unit** | 1.006 (0.977, 1.036) | 0.692 | 1.012 (0.984, 1.040) | 0.403 | **0.919 (0.875, 0.966)** | **0.001** | 0.910 (0.795, 1.043) | 0.176 | 0.994 (0.976, 1.013) | 0.536 | 77.9% |
|  | **LDLC, per unit** | 1.016 (0.917, 1.125) | 0.767 | **1.123 (1.002, 1.259)** | **0.046** | **0.821 (0.712, 0.947)** | **0.007** |  |  | 1.003 (0.938, 1.073) | 0.924 | 82.5% |
|  | **HDLC, per unit** | **0.649 (0.560, 0.751)** | 0.000 | **0.862 (0.761, 0.975)** | **0.018** | **0.663 (0.542, 0.810)** | **0.000** |  |  | **0.746 (0.685, 0.813)** | **0** | **80.0%** |
| **Cholecystectomy** | **TC, mmol/L** |  |  |  |  |  |  |  |  |  |  |  |
|  | <3.1 | Ref |  | Ref |  | Ref |  |  |  | Ref |  |  |
|  | 3.1-5.7 | **0.664 (0.529, 0.834)** | **0.000** | **0.739 (0.565, 0.967)** | **0.028** | 0.841 (0.502, 1.408) | 0.509 | 1 |  | **0.708 (0.601, 0.835)** | **0** | **0.0%** |
|  | >5.7 | **0.604 (0.475, 0.769)** | **0.000** | **0.665 (0.501, 0.883)** | **0.005** | 0.732 (0.422, 1.270) | 0.267 | 0.720 (0.504, 1.029) | 0.071 | **0.653 (0.559, 0.764)** | **0** | **0.0%** |
|  | **TG, mmol/L** |  |  |  |  |  |  |  |  |  |  |  |
|  | <0.4 | Ref |  | Ref |  |  |  |  |  | Ref |  |  |
|  | 0.4-1.7 | 1.374 (0.677, 2.787) | 0.379 | 1.169 (0.368, 3.715) | 0.791 | NA |  | Ref |  | 1.315 (0.719, 2.404) | 0.374 | 0.0% |
|  | >1.7 | 1.730 (0.851, 3.521) | 0.130 | 1.457 (0.458, 4.635) | 0.524 |  |  | 1.117 (0.756, 1.651) | 0.580 | 1.253 (0.902, 1.740) | 0.178 | 0.0% |
|  | **LDL-C, mmol/L** |  |  |  |  |  |  |  |  |  |  |  |
|  | <2.07 | Ref |  | Ref |  | Ref |  |  |  | Ref |  |  |
|  | 2.07-3.1 | **0.880 (0.798, 0.970)** | **0.010** | **0.845 (0.781, 0.913)** | **0.000** | 0.864 (0.677, 1.102) | 0.238 |  |  | **0.859 (0.809, 0.911)** | **0** | **0.0%** |
|  | >3.1 | **0.744 (0.669, 0.828)** | **0.000** | **0.751 (0.671, 0.840)** | **0.000** | 0.846 (0.655, 1.093) | 0.201 |  |  | **0.755 (0.701, 0.813)** | **0** | **0.0%** |
|  | **HDL-C, mmol/L** |  |  |  |  |  |  |  |  |  |  |  |
|  | <0.9 | Ref |  | Ref |  | Ref |  |  |  | Ref |  |  |
|  | 0.9-2.0 | 1.016 (0.892, 1.158) | 0.810 | 0.984 (0.853, 1.136) | 0.826 | **0.674 (0.522, 0.870)** | **0.002** |  |  | 0.953 (0.871, 1.043) | 0.297 | 75.6% |
|  | >2.0 | 0.864 (0.714, 1.047) | 0.136 | **0.738 (0.605, 0.901)** | **0.003** | 0.698 (0.455, 1.073) | 0.102 |  |  | **0.791 (0.693, 0.902)** | **0** | **0.0%** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | **TC, per unit** | **0.799 (0.727, 0.878)** | **0.000** | **0.858 (0.792, 0.930)** | **0.000** | 1.038 (0.841, 1.281) | 0.728 | **0.835 (0.701, 0.995)** | **0.044** | **0.846 (0.800, 0.894)** | **0** | **42.1%** |
|  | **TG, per unit** | **1.088 (1.061, 1.115)** | **0.000** | **1.073 (1.048, 1.099)** | **0.000** | 0.955 (0.883, 1.033) | 0.250 | 1.065 (0.907, 1.249) | 0.444 | **1.074 (1.056, 1.092)** | **0** | **69.0%** |
|  | **LDLC, per unit** | **1.103 (1.001, 1.216)** | **0.049** | 1.020 (0.918, 1.135) | 0.709 | 0.843 (0.672, 1.058) | 0.140 |  |  | 1.042 (0.973, 1.116) | 0.238 | 58.5% |
|  | **HDLC, per unit** | 1.060 (0.927, 1.212) | 0.393 | 0.992 (0.890, 1.105) | 0.882 | 0.746 (0.547, 1.017) | 0.064 |  |  | 0.997 (0.919, 1.081) | 0.938 | 52.1% |

The ORs were adjusted for age, sex, BMI, fatty liver disease, kidney stone, hypertension, FBG, Cr, UA, UN, TBIL, ALT, AST, and TC, TG, LDL-C, LDL-C. Bold means *p* < 0.05, TC: total cholesterol, TG: triglycerides, LDL: low density lipoprotein cholesterol, HDL: high density lipoprotein cholesterol.

**Appendix Table 2**. Subgroup analysis for relationships between blood lipid profiles and gallstone disease by age group in our cross-sectional study.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **First affiliated Hospital of Chongqing Medical**  **University Jinshan Hospital** | | **The People’s Hospital of Kaizhou District of Chongqing** | | **Beijing Xiaotangshan Hospital** | | **Tianjin Medical University Cancer Institute and Hospital** | | **Pooled** | | |
|  |  | **OR (95%CI)** | ***P*** | **OR (95%CI)** | ***P*** | **OR (95%CI)** | ***P*** | **OR (95%CI)** | ***P*** | **OR (95%CI)** | ***P*** | **I-squared** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Age <40** | **TC, mmol/L** |  |  |  |  |  |  |  |  |  |  |  |
|  | <3.1 | Ref |  | Ref |  | Ref |  |  |  | Ref |  |  |
|  | 3.1-5.7 | **0.529 (0.391, 0.717)** | **<0.001** | 0.976 (0.614, 1.552) | 0.918 | 0.688 (0.362, 1.305) | 0.252 | Ref |  | 0.688 (0.460, 1.028) | 0.068 | 57.6% |
|  | >5.7 | **0.493 (0.350, 0.694)** | **<0.001** | 1.000 (0.602, 1.661) | 0.999 | 0.745 (0.349, 1.587) | 0.445 | 0.786 (0.419, 1.474) | 0.452 | 0.701 (0.485, 1.012) | 0.058 | 47.9% |
|  | **TG, mmol/L** |  |  |  |  |  |  |  |  |  |  |  |
|  | <0.4 | Ref |  | Ref |  | Ref |  |  |  | Ref |  |  |
|  | 0.4-1.7 | 0.687 (0.444, 1.063) | 0.092 | 1.778 (0.436, 7.257) | 0.422 | 0.985 (0.398, 2.441) | 0.974 | Ref |  | 0.784 (0.537, 1.145) | 0.208 | 0.0% |
|  | >1.7 | 0.922 (0.587, 1.45) | 0.727 | 2.151 (0.524, 8.836) | 0.288 | 0.822 (0.317, 2.130) | 0.686 | 1.395 (0.713, 2.730) | 0.330 | 1.061 (0.756, 1.489) | 0.733 | 0.0% |
|  | **LDL-C, mmol/L** |  |  |  |  |  |  |  |  |  |  |  |
|  | <2.07 | Ref |  | Ref |  | Ref |  |  |  | Ref |  |  |
|  | 2.07-3.1 | 1.086 (0.952, 1.240) | 0.218 | 0.982 (0.863, 1.117) | 0.784 | 1.001 (0.732, 1.370) | 0.993 |  |  | 1.029 (0.942, 1.125) | 0.523 | 0.0% |
|  | >3.1 | 1.086 (0.926, 1.274) | 0.312 | 0.896 (0.718, 1.118) | 0.330 | 0.866 (0.598, 1.253) | 0.445 |  |  | 0.987 (0.853, 1.142) | 0.856 | 21.7% |
|  | **HDL-C, mmol/L** |  |  |  |  |  |  |  |  |  |  |  |
|  | <0.9 | Ref |  | Ref |  | Ref |  |  |  | Ref |  |  |
|  | 0.9-2.0 | 0.979 (0.797, 1.204) | 0.844 | 0.830 (0.646, 1.066) | 0.144 | 0.918 (0.590, 1.428) | 0.705 |  |  | 0.916 (0.789, 1.064) | 0.252 | 0.0% |
|  | >2.0 | 0.775 (0.560, 1.073) | 0.125 | **0.586 (0.392, 0.874)** | **0.009** | 0.799 (0.389, 1.642) | 0.541 |  |  | **0.704 (0.555, 0.894)** | **0.004** | **0.0%** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | **TC, per unit** | 0.851 (0.724, 1.000) | 0.051 | 1.075 (0.916, 1.262) | 0.376 | 0.821 (0.571, 1.180) | 0.287 | 0.953 (0.712, 1.277) | 0.749 | 0.939 (0.819, 1.077) | 0.369 | 35.8% |
|  | **TG, per unit** | **1.067 (1.023, 1.113)** | **0.002** | 1.037 (0.989, 1.088) | 0.136 | 0.980 (0.859, 1.119) | 0.766 | 0.899 (0.594, 1.359) | 0.613 | **1.049 (1.017, 1.082)** | **0.002** | **0.0%** |
|  | **LDLC, per unit** | **1.194 (1.009, 1.412)** | **0.038** | 0.896 (0.727, 1.104) | 0.302 | 1.044 (0.712, 1.532) | 0.824 |  |  | 1.045 (0.854, 1.279) | 0.666 | 54.8% |
|  | **HDLC, per unit** | **0.738 (0.586, 0.929)** | **0.010** | **0.682 (0.538, 0.866)** | **0.002** | 0.955 (0.584, 1.562) | 0.855 |  |  | **0.732 (0.626, 0.857)** | **<0.001** | **0.0%** |
| **Age 40-60** | **TC, mmol/L** |  |  |  |  |  |  |  |  |  |  |  |
|  | <3.1 | Ref |  | Ref |  | Ref |  |  |  | Ref |  |  |
|  | 3.1-5.7 | 0.737 (0.541, 1.004) | 0.053 | 1.122 (0.790, 1.595) | 0.520 | 0.780 (0.474, 1.286) | 0.331 | Ref |  | 0.869 (0.657, 1.148) | 0.322 | 39.4% |
|  | >5.7 | **0.704 (0.512, 0.968)** | **0.031** | 0.988 (0.688, 1.417) | 0.946 | 0.765 (0.456, 1.284) | 0.310 | 1.073 (0.814, 1.415) | 0.615 | 0.890 (0.719, 1.103) | 0.288 | 32.9% |
|  | **TG, mmol/L** |  |  |  |  |  |  |  |  |  |  |  |
|  | <0.4 | Ref |  | Ref |  | Ref |  |  |  | Ref |  |  |
|  | 0.4-1.7 | 1.338 (0.536, 3.339) | 0.533 | 0.787 (0.237, 2.616) | 0.696 | 1.837 (0.446, 7.559) | 0.399 | Ref |  | 1.226 (0.642, 2.341) | 0.537 | 0.0% |
|  | >1.7 | 1.554 (0.622, 3.886) | 0.346 | 0.907 (0.273, 3.016) | 0.873 | 1.701 (0.412, 7.028) | 0.463 | 0.753 (0.538, 1.056) | 0.100 | 0.867 (0.629, 1.195) | 0.384 | 2.8% |
|  | **LDL-C, mmol/L** |  |  |  |  |  |  |  |  |  |  |  |
|  | <2.07 | Ref |  | Ref |  | Ref |  |  |  | Ref |  |  |
|  | 2.07-3.1 | 0.917 (0.820, 1.024) | 0.123 | **0.868 (0.803, 0.939)** | **<0.001** | 0.971 (0.786, 1.199) | 0.784 |  |  | **0.891 (0.838, 0.948)** | **<0.001** | **0.0%** |
|  | >3.1 | **0.876 (0.780, 0.983)** | 0.025 | 0.917 (0.824, 1.020) | 0.112 | 1.003 (0.809, 1.245) | 0.975 |  |  | **0.910 (0.845, 0.979)** | **0.012** | **0.0%** |
|  | **HDL-C, mmol/L** |  |  |  |  |  |  |  |  |  |  |  |
|  | <0.9 | Ref |  | Ref |  | Ref |  |  |  | Ref |  |  |
|  | 0.9-2.0 | **0.843 (0.745, 0.953)** | **0.006** | 0.941 (0.823, 1.075) | 0.369 | 0.797 (0.659, 0.965) | 0.020 |  |  | **0.868 (0.793, 0.950)** | **0.002** | **15.7%** |
|  | >2.0 | **0.622 (0.512, 0.755)** | **<0.001** | **0.775 (0.645, 0.930)** | **0.006** | 0.754 (0.532, 1.068) | 0.112 |  |  | **0.706 (0.607, 0.822)** | **<0.001** | **27.6%** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | **TC, per unit** | 0.923 (0.841, 1.014) | 0.094 | **0.851 (0.788, 0.918)** | **<0.001** | 1.123 (0.967, 1.304) | 0.128 | 1.015 (0.887, 1.162) | 0.824 | 0.960 (0.858, 1.074) | 0.478 | 76.8% |
|  | **TG, per unit** | **1.042 (1.015, 1.070)** | **0.002** | **1.053 (1.029, 1.077)** | **<0.001** | **0.918 (0.870, 0.969)** | **0.002** | 0.927 (0.801, 1.073) | 0.310 | 0.999 (0.944, 1.058) | 0.985 | 87.4% |
|  | **LDLC, per unit** | 1.051 (0.955, 1.157) | 0.305 | **1.129 (1.021, 1.248)** | **0.018** | 0.886 (0.755, 1.040) | 0.138 |  |  | 1.032 (0.917, 1.162) | 0.601 | 68.5% |
|  | **HDLC, per unit** | **0.756 (0.657, 0.871)** | **<0.001** | 1.005 (0.908, 1.112) | 0.929 | **0.666 (0.527, 0.842)** | **0.001** |  |  | 0.809 (0.631, 1.036) | 0.093 | 87.8% |
| **Age >60** | **TC, mmol/L** |  |  |  |  |  |  |  |  |  |  |  |
|  | <3.1 | Ref |  | Ref |  | Ref |  |  |  | Ref |  |  |
|  | 3.1-5.7 | 0.895 (0.663, 1.208) | 0.468 | **0.545 (0.371, 0.801)** | **0.002** | 1.052 (0.665, 1.663) | 0.828 |  |  | 0.796 (0.551, 1.150) | 0.225 | 65.0% |
|  | >5.7 | 0.833 (0.604, 1.149) | 0.265 | **0.475 (0.314, 0.718)** | **<0.001** | 0.981 (0.600, 1.606) | 0.940 |  |  | **0.702 (0.530, 0.930)** | **0.014** | **54.1%** |
|  | **TG, mmol/L** |  |  |  |  |  |  |  |  |  |  |  |
|  | <0.4 | Ref |  | Ref |  | Ref |  |  |  | Ref |  |  |
|  | 0.4-1.7 | 0.472 (0.164, 1.362) | 0.165 | 0.506 (0.042, 6.052) | 0.591 | 0.558 (0.114, 2.729) | 0.471 | Ref |  | 0.498 (0.217, 1.143) | 0.100 | 0.0% |
|  | >1.7 | 0.544 (0.188, 1.575) | 0.262 | 0.601 (0.050, 7.197) | 0.688 | 0.641 (0.130, 3.154) | 0.584 | **0.648 (0.466, 0.899)** | **0.009** | 1.032 (0.749, 1.422) | 0.848 | 0.0% |
|  | **LDL-C, mmol/L** |  |  |  |  |  |  |  |  |  |  |  |
|  | <2.07 | Ref |  | Ref |  | Ref |  |  |  | Ref |  |  |
|  | 2.07-3.1 | **0.822 (0.713, 0.947)** | **0.007** | 0.938 (0.813, 1.083) | 0.385 | 0.809 (0.643, 1.019) | 0.072 | Ref |  | **0.866 (0.788, 0.951)** | **0.003** | **2.6%** |
|  | >3.1 | **0.754 (0.648, 0.877)** | **<0.001** | 0.868 (0.716, 1.051) | 0.147 | **0.764 (0.600, 0.975)** | **0.030** | 1.143 (0.807, 1.618) | 0.453 | **0.789 (0.710, 0.878)** | **<0.001** | **0.0%** |
|  | **HDL-C, mmol/L** |  |  |  |  |  |  |  |  |  |  |  |
|  | <0.9 | Ref |  | Ref |  | Ref |  |  |  | Ref |  |  |
|  | 0.9-2.0 | 1.123 (0.902, 1.397) | 0.299 | 0.971 (0.744, 1.267) | 0.829 | 1.049 (0.785, 1.401) | 0.747 |  |  | 1.056 (0.913, 1.222) | 0.461 | 0.0% |
|  | >2.0 | 0.874 (0.656, 1.164) | 0.356 | **0.684 (0.478, 0.979)** | **0.038** | 0.912 (0.579, 1.436) | 0.691 |  |  | **0.816 (0.668, 0.998)** | **0.047** | **0.0%** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | **TC, per unit** | **0.835 (0.714, 0.977)** | **0.025** | **0.873 (0.764, 0.998)** | **0.046** | **1.360 (1.104, 1.676)** | **0.004** | **0.828 (0.706, 0.971)** | **0.020** | 0.941 (0.776, 1.142) | 0.540 | 82.5% |
|  | **TG, per unit** | **1.064 (1.013, 1.118)** | **0.013** | 1.038 (0.990, 1.089) | 0.122 | 0.945 (0.867, 1.030) | 0.200 | 1.008 (0.824, 1.233) | 0.940 | 1.026 (0.977, 1.077) | 0.301 | 46.2% |
|  | **LDLC, per unit** | 1.085 (0.923, 1.276) | 0.322 | 1.036 (0.868, 1.237) | 0.692 | **0.644 (0.512, 0.810)** | **<0.001** |  |  | 0.907 (0.677, 1.215) | 0.514 | 86.3% |
|  | **HDLC, per unit** | 1.072 (0.873, 1.316) | 0.510 | 0.859 (0.705, 1.047) | 0.133 | **0.616 (0.454, 0.836)** | **0.002** |  |  | 0.844 (0.638, 1.118) | 0.237 | 77.3% |

The ORs were adjusted for age, sex, BMI, fatty liver disease, kidney stone, hypertension, FBG, Cr, UA, UN, TBIL, ALT, AST, and TC, TG, LDL-C, LDL-C. Bold means *p* < 0.05, TC: total cholesterol, TG: triglycerides, LDL: low density lipoprotein cholesterol, HDL:high density lipoprotein cholesterol.

**Appendix Table 3.** Subgroup analysis for relationships between blood lipid levels and gallstone disease by gender in our cross-sectional study.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **First affiliated Hospital of Chongqing Medical**  **University Jinshan Hospital** | | **The People’s Hospital of Kaizhou District of Chongqing** | | **Beijing Xiaotangshan Hospital** | | **Tianjin Medical University Cancer Institute and Hospital** | | **Pooled** | | |
|  |  | **OR (95%CI)** | ***P*** | **OR (95%CI)** | ***P*** | **OR (95%CI)** | ***P*** | **OR (95%CI)** | ***P*** | **OR (95%CI)** | ***P*** | **I-squared** |
| **Male** | **TC, mmol/L** |  |  |  |  |  |  |  |  |  |  |  |
|  | <3.1 | Ref |  | Ref |  | Ref |  |  |  | Ref |  |  |
|  | 3.1-5.7 | **0.719 (0.577, 0.897)** | **0.003** | 0.838 (0.628, 1.120) | 0.233 | 0.905 (0.633, 1.292) | 0.582 | Ref |  | **0.787 (0.672, 0.921)** | **0.003** | 0.0% |
|  | >5.7 | **0.643 (0.509, 0.811)** | **<0.001** | **0.737 (0.544, 0.999)** | **0.049** | 0.838 (0.572, 1.226) | 0.362 | 0.869 (0.658, 1.147) | 0.321 | **0.745 (0.645, 0.861)** | **<0.001** | 2.6% |
|  | **TG, mmol/L** |  |  |  |  |  |  |  |  |  |  |  |
|  | <0.4 | Ref |  | Ref |  | Ref |  |  |  | Ref |  |  |
|  | 0.4-1.7 | 0.705 (0.350, 1.421) | 0.329 | 0.395 (0.112, 1.390) | 0.148 | 0.854 (0.259, 2.815) | 0.796 | Ref |  | 0.659 (0.382, 1.135) | 0.133 | 0.0% |
|  | >1.7 | 0.824 (0.408, 1.663) | 0.589 | 0.447 (0.127, 1.575) | 0.210 | 0.817 (0.247, 2.700) | 0.740 | 1.034 (0.771, 1.385) | 0.825 | 0.957 (0.739, 1.239) | 0.739 | 0.0% |
|  | **LDL-C, mmol/L** |  |  |  |  |  |  |  |  |  |  |  |
|  | <2.07 | Ref |  | Ref |  | Ref |  |  |  | Ref |  |  |
|  | 2.07-3.1 | 0.929 (0.835, 1.032) | 0.170 | **0.907 (0.829, 0.993)** | **0.034** | 0.862 (0.721, 1.030) | 0.102 |  |  | **0.909 (0.853, 0.969)** | **0.003** | 0.0% |
|  | >3.1 | **0.854 (0.765, 0.954)** | **0.005** | 0.895 (0.795, 1.007) | 0.066 | 0.863 (0.718, 1.038) | 0.117 |  |  | **0.871 (0.809, 0.938)** | **<0.001** | 0.0% |
|  | **HDL-C, mmol/L** |  |  |  |  |  |  |  |  |  |  |  |
|  | <0.9 | Ref |  | Ref |  | Ref |  |  |  | Ref |  |  |
|  | 0.9-2.0 | 0.908 (0.817, 1.009) | 0.072 | **0.875 (0.777, 0.986)** | **0.029** | **0.815 (0.692, 0.959)** | **0.014** |  |  | **0.878 (0.818, 0.943)** | **<0.001** | 0.0% |
|  | >2.0 | **0.636 (0.492, 0.821)** | **<0.001** | **0.770 (0.630, 0.940)** | **0.010** | 0.754 (0.500, 1.137) | 0.178 |  |  | **0.721 (0.622, 0.835)** | **<0.001** | 0.0% |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | **TC, per unit** | 0.941 (0.860, 1.029) | 0.180 | **0.879 (0.810, 0.954)** | **0.002** | **1.161 (1.004, 1.344)** | **0.044** | 0.891 (0.775, 1.023) | 0.101 | 0.953 (0.857, 1.059) | 0.367 | 73.1% |
|  | **TG, per unit** | **1.033 (1.008, 1.059)** | **0.011** | **1.042 (1.017, 1.067)** | **<0.001** | **0.912 (0.866, 0.960)** | **<0.001** | 0.973 (0.860, 1.100) | 0.661 | 0.996 (0.944, 1.051) | 0.884 | 87.0% |
|  | **LDLC, per unit** | 0.977 (0.891, 1.071) | 0.615 | 1.038 (0.932, 1.156) | 0.496 | **0.808 (0.690, 0.946)** | **0.008** |  |  | 0.948 (0.839, 1.072) | 0.397 | 70.1% |
|  | **HDLC, per unit** | **0.776 (0.673, 0.895)** | **<0.001** | 0.958 (0.857, 1.070) | 0.447 | **0.541 (0.428, 0.685)** | **<0.001** |  |  | **0.751 (0.568, 0.995)** | **0.046** | 89.9% |
| **Female** | **TC, mmol/L** |  |  |  |  |  |  |  |  |  |  |  |
|  | <3.1 | Ref |  | Ref |  | Ref |  |  |  | Ref |  |  |
|  | 3.1-5.7 | 0.779 (0.575, 1.055) | 0.106 | 0.897 (0.637, 1.264) | 0.536 | 0.831 (0.475, 1.452) | 0.515 | Ref |  | 0.829 (0.672, 1.023) | 0.081 | 0.0% |
|  | >5.7 | 0.777 (0.566, 1.067) | 0.118 | 0.822 (0.575, 1.175) | 0.282 | 0.864 (0.482, 1.549) | 0.623 | 0.888 (0.677, 1.166) | 0.394 | **0.837 (0.706, 0.993)** | **0.042** | 0.0% |
|  | **TG, mmol/L** |  |  |  |  |  |  |  |  |  |  |  |
|  | <0.4 | Ref |  | Ref |  | Ref |  |  |  | Ref |  |  |
|  | 0.4-1.7 | 0.808 (0.527, 1.240) | 0.330 | 1.814 (0.572, 5.750) | 0.312 | 1.206 (0.530, 2.744) | 0.656 | Ref |  | 0.954 (0.655, 1.391) | 0.807 | 3.6% |
|  | >1.7 | 0.997 (0.646, 1.540) | 0.990 | 2.211 (0.696, 7.025) | 0.179 | 1.299 (0.564, 2.994) | 0.539 | 0.897 (0.645, 1.246) | 0.516 | 0.997 (0.780, 1.273) | 0.980 | 0.0% |
|  | **LDL-C, mmol/L** |  |  |  |  |  |  |  |  |  |  |  |
|  | <2.07 | Ref |  | Ref |  | Ref |  |  |  | Ref |  |  |
|  | 2.07-3.1 | 0.956 (0.865, 1.055) | 0.371 | **0.917 (0.844, 0.997)** | **0.041** | 1.016 (0.817, 1.265) | 0.884 |  |  | **0.939 (0.883, 0.998)** | **0.044** | 0.0% |
|  | >3.1 | 0.951 (0.848, 1.067) | 0.400 | 0.939 (0.828, 1.065) | 0.325 | 0.972 (0.767, 1.231) | 0.814 |  |  | 0.949 (0.876, 1.027) | 0.194 | 0.0% |
|  | **HDL-C, mmol/L** |  |  |  |  |  |  |  |  |  |  |  |
|  | <0.9 | Ref |  | Ref |  | Ref |  |  |  | Ref |  |  |
|  | 0.9-2.0 | 0.864 (0.688, 1.084) | 0.206 | 1.024 (0.791, 1.326) | 0.856 | 1.187 (0.800, 1.763) | 0.394 |  |  | 0.970 (0.822, 1.144) | 0.718 | 8.1% |
|  | >2.0 | **0.708 (0.548, 0.915)** | **0.008** | 0.772 (0.576, 1.035) | 0.084 | 1.122 (0.703, 1.789) | 0.630 |  |  | **0.797 (0.638, 0.995)** | **0.045** | 30.3% |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | **TC, per unit** | **0.786 (0.693, 0.891)** | **<0.001** | **0.874 (0.797, 0.958)** | **0.004** | 1.129 (0.937, 1.360) | 0.201 | 1.003 (0.882, 1.141) | 0.967 | 0.928 (0.811, 1.061) | 0.273 | 77.3% |
|  | **TG, per unit** | **1.126 (1.082, 1.172)** | **<0.001** | **1.089 (1.054, 1.125)** | **<0.001** | 1.001 (0.921, 1.088) | 0.988 | 0.925 (0.765, 1.119) | 0.423 | **1.071 (1.015, 1.129)** | **0.012** | 68.0% |
|  | **LDLC, per unit** | **1.276 (1.122, 1.451)** | **<0.001** | **1.132 (1.002, 1.279)** | **0.047** | 0.844 (0.691, 1.030) | 0.095 |  |  | 1.083 (0.883, 1.328) | 0.443 | 82.8% |
|  | **HDLC, per unit** | 1.022 (0.868, 1.203) | 0.793 | 0.930 (0.818, 1.058) | 0.269 | 0.923 (0.711, 1.199) | 0.549 |  |  | 0.959 (0.873, 1.054) | 0.382 | 0.0% |

The ORs were adjusted for age, sex, BMI, fatty liver disease, kidney stone, hypertension, FBG, Cr, UA, UN, TBIL, ALT, AST, and TC, TG, LDL-C, LDL-C. Bold means *p* < 0.05, TC: total cholesterol, TG: triglycerides, LDL: low density lipoprotein cholesterol, HDL:high density lipoprotein cholesterol.

**Appendix Table 4.** Search terms for the electronic literature database search in the meta-analysis

|  |  |
| --- | --- |
|  | **Key words** |
|  | gallstone OR gallstone disease OR gallbladder stone OR gallbladder calculus OR biliary tract stone OR bile duct stone OR choledocholithiasis OR cholelithiasis OR cholecystolithiasis OR hepatolithiasis |
| **AND** | lipid OR blood lipid OR total cholesterol OR triglyceride OR high density lipoprotein OR HDL OR HDL cholesterol OR HDL-C OR low density lipoprotein OR LDL OR LDL cholesterol OR LDL-C |

**Appendix Table 5.** The characteristics of the included publications regarding the mean difference of the blood lipid levels between groups in meta-analysis

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **PMID** | **Author** | **Year** | **Period** | **Study\_design** | **Country** | **Geographic**  **background** | **Cases** | **Controls** | **Sex** | **Traits** | **Mean\_**  **case** | **SD\_**  **case** | **Mean\_**  **control** | **SD\_**  **control** | **Units** |
| 32431528 | Sepehrimanesh | 2020 | January 2012 - January 2018 | cross-sectional study | Iran | Asia | 59 | 177 | Both | TG | 137.22 | 103.81 | 124.18 | 107.91 | mg/dL |
| 32431528 | Sepehrimanesh | 2020 | January 2012 - January 2018 | cross-sectional study | Iran | Asia | 59 | 177 | Both | HDL-C | 44.50 | 10.69 | 47.20 | 11.78 | mg/dL |
| 32192520 | Wang | 2020 | January 2014 - January 2015 | cross-sectional study | China | Asia | 168092 | 1900432 | Both | TC | 4.98 | 1.00 | 4.84 | 0.98 | mmol/L |
| 32192520 | Wang | 2020 | January 2014 - January 2015 | cross-sectional study | China | Asia | 168092 | 1900432 | Both | TG | 1.67 | 1.33 | 1.53 | 1.30 | mmol/L |
| 32192520 | Wang | 2020 | January 2014 - January 2015 | cross-sectional study | China | Asia | 168092 | 1900432 | Both | LDL-C | 3.01 | 0.83 | 2.89 | 0.81 | mmol/L |
| 32192520 | Wang | 2020 | January 2014 - January 2015 | cross-sectional study | China | Asia | 168092 | 1900432 | Both | HDL-C | 1.27 | 0.37 | 1.31 | 0.31 | mmol/L |
| 32166900 | Song | 2020 | NA | cross-sectional study | Spain | Europe | 274 | 3735 | Both | TC | 5.23 | 0.87 | 5.11 | 0.96 | mmol/L |
| 32166900 | Song | 2020 | NA | cross-sectional study | China | Asia | 274 | 3735 | Both | TG | 1.73 | 1.40 | 1.46 | 1.25 | mmol/L |
| 32166900 | Song | 2020 | NA | cross-sectional study | Italy | Europe | 274 | 3735 | Both | LDL-C | 3.28 | 0.81 | 3.18 | 0.87 | mmol/L |
| 32166900 | Song | 2020 | NA | cross-sectional study | China | Asia | 274 | 3735 | Both | HDL-C | 1.47 | 0.41 | 1.54 | 0.41 | mmol/L |
| 32011459 | Gu | 2020 | July 2010 - December 2012 | case-control study | China | Asia | 94 | 2194 | Both | TC | 4.10 | 1.50 | 4.20 | 1.60 | mmol/L |
| 32011459 | Gu | 2020 | July 2010 - December 2012 | case-control study | China | Asia | 94 | 2194 | Both | TG | 1.40 | 0.90 | 1.80 | 1.70 | mmol/L |
| 32011459 | Gu | 2020 | July 2010 - December 2012 | case-control study | China | Asia | 94 | 2194 | Both | LDL-C | 3.50 | 1.90 | 2.70 | 1.00 | mmol/L |
| 32011459 | Gu | 2020 | July 2010 - December 2012 | case-control study | China | Asia | 94 | 2194 | Both | HDL-C | 1.80 | 0.90 | 1.80 | 1.20 | mmol/L |
| 31277096 | Kim | 2019 | January 2009 - December 2017 | cross-sectional study | Korea | Asia | 355 | 7531 | Both | TC | 198.60 | 36.70 | 198.90 | 37.20 | mg/dL |
| 31277096 | Kim | 2019 | January 2009 - December 2017 | cross-sectional study | Korea | Asia | 355 | 7531 | Both | TG | 121.80 | 76.00 | 118.80 | 91.00 | mg/dL |
| 31277096 | Kim | 2019 | January 2009 - December 2017 | cross-sectional study | Korea | Asia | 355 | 7531 | Both | LDL-C | 122.30 | 33.80 | 121.10 | 34.30 | mg/dL |
| 31277096 | Kim | 2019 | January 2009 - December 2017 | cross-sectional study | Korea | Asia | 355 | 7531 | Both | HDL-C | 52.00 | 13.60 | 54.10 | 13.70 | mg/dL |
| 31065353 | Hayat | 2019 | August 2017 - August 2018 | cross-sectional study | Pakistan | Asia | 50 | 50 | Both | TC | 184.60 | 37.65 | 181.08 | 33.97 | mg/dL |
| 31065353 | Hayat | 2019 | August 2017 - August 2018 | cross-sectional study | Pakistan | Asia | 50 | 50 | Both | TG | 198.12 | 48.40 | 171.98 | 54.57 | mg/dL |
| 31065353 | Hayat | 2019 | August 2017 - August 2018 | cross-sectional study | Pakistan | Asia | 50 | 50 | Both | LDL-C | 118.40 | 23.96 | 122.12 | 35.92 | mg/dL |
| 31065353 | Hayat | 2019 | August 2017 - August 2018 | cross-sectional study | Pakistan | Asia | 50 | 50 | Both | HDL-C | 29.54 | 8.41 | 40.34 | 11.61 | mg/dL |
| 30794560 | Kim | 2019 | June 2014 - May 2015 | cross-sectional study | China | Asia | 806 | 36495 | Male | TC | 110.80 | 27.10 | 110.30 | 27.50 | mg/dL |
| 30794560 | Kim | 2019 | June 2014 - May 2015 | cross-sectional study | China | Asia | 554 | 21544 | Female | TC | 97.90 | 24.60 | 94.90 | 24.20 | mg/dL |
| 30794560 | Kim | 2019 | June 2014 - May 2015 | cross-sectional study | Spain | Europe | 806 | 36495 | Male | LDL-C | 189.30 | 30.90 | 190.50 | 30.20 | mg/dL |
| 30794560 | Kim | 2019 | June 2014 - May 2015 | cross-sectional study | Spain | Europe | 554 | 21544 | Female | LDL-C | 178.90 | 28.20 | 177.70 | 26.80 | mg/dL |
| 30794560 | Kim | 2019 | June 2014 - May 2015 | cross-sectional study | Italy | Asia | 806 | 36495 | Male | HDL-C | 53.20 | 11.60 | 55.00 | 12.40 | mg/dL |
| 30794560 | Kim | 2019 | June 2014 - May 2015 | cross-sectional study | Italy | Asia | 554 | 21544 | Female | HDL-C | 65.10 | 13.90 | 68.40 | 13.70 | mg/dL |
| 30498320 | Dhamnetiya | 2018 | January 2013 - December 2013 | case-control study | India | Asia | 120 | 120 | Both | TC | 183.49 | 34.44 | 163.73 | 27.79 | mg/dL |
| 30498320 | Dhamnetiya | 2018 | January 2013 - December 2013 | case-control study | India | Asia | 120 | 120 | Both | TG | 169.06 | 63.23 | 149.78 | 19.44 | mg/dL |
| 30498320 | Dhamnetiya | 2018 | January 2013 - December 2013 | case-control study | India | Asia | 120 | 120 | Both | LDL-C | 123.86 | 19.66 | 112.98 | 18.80 | mg/dL |
| 30498320 | Dhamnetiya | 2018 | January 2013 - December 2013 | case-control study | India | Asia | 120 | 120 | Both | HDL-C | 40.90 | 8.13 | 41.30 | 7.77 | mg/dL |
| 29788702 | Kwon | 2018 | January 2003 - December 2015 | cross-sectional study | Korea | Asia | 821 | 19942 | Both | TC | 193.90 | 36.70 | 196.30 | 37.20 | mg/dL |
| 29788702 | Kwon | 2018 | January 2003 - December 2015 | cross-sectional study | Korea | Asia | 821 | 19942 | Both | TG | 118.20 | 75.70 | 117.40 | 85.00 | mg/dL |
| 29788702 | Kwon | 2018 | January 2003 - December 2015 | cross-sectional study | Korea | Asia | 821 | 19942 | Both | LDL-C | 118.70 | 33.40 | 118.70 | 33.70 | mg/dL |
| 29788702 | Kwon | 2018 | January 2003 - December 2015 | cross-sectional study | Korea | Asia | 821 | 19942 | Both | HDL-C | 52.20 | 13.30 | 54.50 | 13.60 | mg/dL |
| 28458703 | Serin | 2017 | January 2015 - March 2015 | cross-sectional study | Turkey | Other | 48 | 88 | Both | TC | 184.92 | 45.13 | 205.15 | 50.26 | mg/dL |
| 27746618 | Ravikanth | 2016 | NA | case-control study | India | Asia | 305 | 177 | Both | TC | 171.00 | 36.70 | 169.00 | 24.10 | mg/dL |
| 27746618 | Ravikanth | 2016 | NA | case-control study | India | Asia | 305 | 177 | Both | TG | 148.00 | 70.00 | 152.00 | 76.60 | mg/dL |
| 27746618 | Ravikanth | 2016 | NA | case-control study | India | Asia | 305 | 177 | Both | LDL-C | 104.00 | 31.80 | 100.00 | 16.10 | mg/dL |
| 27746618 | Ravikanth | 2016 | NA | case-control study | India | Asia | 305 | 177 | Both | HDL-C | 37.60 | 16.90 | 39.40 | 25.80 | mg/dL |
| 27158408 | Zhan | 2016 | NA | cross-sectional study | China | Asia | 171 | 125 | Both | LDL-C | 130.70 | 35.10 | 113.30 | 28.90 | mg/dL |
| 27158408 | Zhan | 2016 | NA | cross-sectional study | China | Asia | 171 | 125 | Both | HDL-C | 46.80 | 10.50 | 51.80 | 12.00 | mg/dL |
| 26269681 | Zhang | 2015 | January 2010 - January 2014 | cross-sectional study | Korea | Asia | 882 | 9134 | Both | TG | 1.80 | 3.93 | 1.52 | 1.25 | mg/dL |
| 26269681 | Zhang | 2015 | January 2010 - January 2014 | cross-sectional study | China | Asia | 882 | 9134 | Both | TC | 4.93 | 1.07 | 4.70 | 1.03 | mmol/L |
| 26269681 | Zhang | 2015 | January 2010 - January 2014 | cross-sectional study | Spain | Europe | 882 | 9134 | Both | LDL-C | 2.85 | 6.65 | 2.60 | 2.04 | mmol/L |
| 26269681 | Zhang | 2015 | January 2010 - January 2014 | cross-sectional study | Italy | Europe | 882 | 9134 | Both | HDL-C | 1.18 | 0.37 | 1.31 | 2.41 | mmol/L |
| 26228366 | Dai | 2015 | June 2012 - October 2013 | case-control study | China | Asia | 20 | 10 | Both | TC | 3.90 | 1.32 | 3.22 | 0.60 | mmol/L |
| 26228366 | Dai | 2015 | June 2012 - October 2013 | case-control study | China | Asia | 20 | 10 | Both | TG | 1.33 | 0.23 | 1.20 | 0.22 | mmol/L |
| 26225710 | Dwivedi | 2015 | NA | case-control study | India | Asia | 102 | 256 | Both | TC | 175.42 | 67.36 | 156.68 | 38.00 | mg/dL |
| 26225710 | Dwivedi | 2015 | NA | case-control study | India | Asia | 102 | 256 | Both | TG | 165.51 | 63.25 | 125.75 | 59.60 | mg/dL |
| 26225710 | Dwivedi | 2015 | NA | case-control study | India | Asia | 102 | 256 | Both | LDL-C | 113.32 | 68.87 | 90.44 | 39.67 | mg/dL |
| 26225710 | Dwivedi | 2015 | NA | case-control study | India | Asia | 102 | 256 | Both | HDL-C | 29.00 | 13.29 | 41.09 | 12.19 | mg/dL |
| 26034364 | Kwak | 2015 | January 2010 - December 2010 | cross-sectional study | Korea | Asia | 1069 | 16543 | Both | TC | 194.40 | 33.70 | 193.40 | 33.70 | mg/dL |
| 26034364 | Kwak | 2015 | January 2010 - December 2010 | cross-sectional study | Korea | Asia | 1069 | 16543 | Both | TG | 103.20 | 68.00 | 111.10 | 62.30 | mg/dL |
| 26034364 | Kwak | 2015 | January 2010 - December 2010 | cross-sectional study | Korea | Asia | 1069 | 16543 | Both | HDL-C | 55.10 | 12.20 | 53.20 | 12.10 | mg/dL |
| 26019038 | Martinez-Lopez | 2015 | April 2007 - December 2009 | case-control study | Mexico | America | 90 | 371 | Both | TC | 172.90 | 41.50 | 184.90 | 36.30 | mg/dL |
| 26019038 | Martinez-Lopez | 2015 | April 2007 - December 2009 | case-control study | Mexico | America | 90 | 371 | Both | TG | 146.60 | 60.20 | 145.00 | 87.50 | mg/dL |
| 26019038 | Martinez-Lopez | 2015 | April 2007 - December 2009 | case-control study | Mexico | America | 90 | 371 | Both | LDL-C | 128.20 | 10.00 | 110.90 | 30.90 | mg/dL |
| 26019038 | Martinez-Lopez | 2015 | April 2007 - December 2009 | case-control study | Mexico | America | 90 | 371 | Both | HDL-C | 40.30 | 7.70 | 45.00 | 19.20 | mg/dL |
| 25762517 | Sarac | 2015 | November 2008 - December 2010 | case-control study | Turkey | Other | 90 | 50 | Both | TC | 190.70 | 27.80 | 162.40 | 11.40 | mg/dL |
| 25762517 | Sarac | 2015 | November 2008 - December 2010 | case-control study | Turkey | Other | 90 | 50 | Both | TG | 160.00 | 20.40 | 112.30 | 10.90 | mg/dL |
| 25762517 | Sarac | 2015 | November 2008 - December 2010 | case-control study | Turkey | Other | 90 | 50 | Both | HDL-C | 32.10 | 14.90 | 45.20 | 12.40 | mg/dL |
| 25365614 | Zamani | 2014 | 2008 – 2010 | cross-sectional study | Iran | Asia | 51 | 6143 | Both | TC | 194.62 | 42.13 | 180.31 | 47.36 | mg/dL |
| 25365614 | Zamani | 2014 | 2008 – 2010 | cross-sectional study | Iran | Asia | 51 | 6143 | Both | TG | 166.92 | 131.83 | 134.02 | 110.24 | mg/dL |
| 25356055 | Zhu | 2014 | March 2013 - June 2013 | cross-sectional study | China | Asia | 1240 | 8215 | Both | TC | 4.89 | 0.90 | 4.84 | 1.02 | mmol/L |
| 25356055 | Zhu | 2014 | March 2013 - June 2013 | cross-sectional study | China | Asia | 1240 | 8215 | Both | TG | 2.02 | 1.35 | 1.79 | 1.52 | mmol/L |
| 25356055 | Zhu | 2014 | March 2013 - June 2013 | cross-sectional study | China | Asia | 1240 | 8215 | Both | LDL-C | 2.79 | 0.76 | 2.81 | 1.57 | mmol/L |
| 25356055 | Zhu | 2014 | March 2013 - June 2013 | cross-sectional study | China | Asia | 1240 | 8215 | Both | HDL-C | 1.28 | 0.31 | 1.34 | 0.41 | mmol/L |
| 25070766 | Lin | 2014 | 2011 - 2012 | cross-sectional study | China | Asia | 734 | 11180 | Both | TC | 191.80 | 37.27 | 192.80 | 35.66 | mg/dL |
| 25070766 | Lin | 2014 | 2011 - 2012 | cross-sectional study | China | Asia | 734 | 11180 | Both | TG | 126.80 | 111.90 | 115.10 | 105.00 | mg/dL |
| 25070766 | Lin | 2014 | 2011 - 2012 | cross-sectional study | China | Asia | 734 | 11180 | Both | LDL-C | 119.90 | 33.18 | 119.90 | 31.01 | mg/dL |
| 25070766 | Lin | 2014 | 2011 - 2012 | cross-sectional study | China | Asia | 734 | 11180 | Both | HDL-C | 46.14 | 12.13 | 49.17 | 12.79 | mg/dL |
| 24989169 | Lee | 2014 | January 2000 - August 2009 | cross-sectional study | China | Asia | 768 | 11265 | Both | TC | 202.20 | 38.40 | 197.60 | 36.80 | mg/dL |
| 24989169 | Lee | 2014 | January 2000 - August 2009 | cross-sectional study | China | Asia | 768 | 11265 | Both | TG | 140.00 | 83.10 | 132.00 | 88.50 | mg/dL |
| 24989169 | Lee | 2014 | January 2000 - August 2009 | cross-sectional study | China | Asia | 768 | 11265 | Both | HDL-C | 47.70 | 12.50 | 49.30 | 13.70 | mg/dL |
| 24829684 | Ajdarkosh | 2013 | January 2008 - February 2012 | case-control study | Iran | Asia | 151 | 347 | Both | TC | 189.75 | 61.10 | 188.20 | 43.10 | mg/dL |
| 24829684 | Ajdarkosh | 2013 | January 2008 - February 2012 | case-control study | Iran | Asia | 151 | 347 | Both | TG | 169.83 | 133.00 | 143.07 | 101.02 | mg/dL |
| 24829684 | Ajdarkosh | 2013 | January 2008 - February 2012 | case-control study | Iran | Asia | 151 | 347 | Both | LDL-C | 64.81 | 39.47 | 111.04 | 39.73 | mg/dL |
| 24829684 | Ajdarkosh | 2013 | January 2008 - February 2012 | case-control study | Iran | Asia | 151 | 347 | Both | HDL-C | 73.35 | 43.08 | 46.41 | 13.63 | mg/dL |
| 24775330 | Chen | 2014 | 2002 - December 2007 | cohort study | China | Asia | 23 | 1273 | Both | TC | 218.17 | 35.68 | 209.80 | 36.75 | mg/dL |
| 24775330 | Chen | 2014 | 2002 - December 2007 | cohort study | China | Asia | 23 | 1273 | Both | TG | 150.68 | 88.04 | 147.26 | 79.53 | mg/dL |
| 24775330 | Chen | 2014 | 2002 - December 2007 | cohort study | China | Asia | 23 | 1273 | Both | HDL-C | 55.70 | 16.31 | 54.24 | 15.92 | mg/dL |
| 23787527 | Batajoo | 2013 | January 2010 - December 2011 | cross-sectional study | Nepal | Asia | 61 | 67 | Female | TC | 189.33 | 34.04 | 178.57 | 28.57 | mg/dL |
| 23787527 | Batajoo | 2013 | January 2010 - December 2011 | cross-sectional study | Nepal | Asia | 61 | 67 | Female | TG | 130.39 | 48.54 | 125.19 | 42.24 | mg/dL |
| 23787527 | Batajoo | 2013 | January 2010 - December 2011 | cross-sectional study | Nepal | Asia | 61 | 67 | Female | LDL-C | 113.51 | 32.72 | 102.04 | 27.93 | mg/dL |
| 23787527 | Batajoo | 2013 | January 2010 - December 2011 | cross-sectional study | Nepal | Asia | 61 | 67 | Female | HDL-C | 42.20 | 3.39 | 43.06 | 2.39 | mg/dL |
| 23736795 | Takahashi | 2014 | 2010 | cross-sectional study | Japan | Asia | 694 | 14857 | Both | TC | 205.40 | 33.30 | 201.60 | 32.60 | mg/dL |
| 23736795 | Takahashi | 2014 | 2010 | cross-sectional study | Japan | Asia | 694 | 14857 | Both | TG | 121.20 | 121.20 | 103.10 | 72.20 | mg/dL |
| 23736795 | Takahashi | 2014 | 2010 | cross-sectional study | Japan | Asia | 694 | 14857 | Both | LDL-C | 127.60 | 30.70 | 123.20 | 31.00 | mg/dL |
| 23736795 | Takahashi | 2014 | 2010 | cross-sectional study | Japan | Asia | 694 | 14857 | Both | HDL-C | 62.30 | 16.90 | 65.40 | 16.80 | mg/dL |
| 22919256 | Chen | 2012 | NA | cross-sectional study | China | Asia | 918 | 6652 | Both | TG | 201.10 | 183.30 | 183.70 | 182.70 | mg/L |
| 22919256 | Chen | 2012 | NA | cross-sectional study | China | Asia | 918 | 6652 | Both | HDL-C | 44.60 | 10.90 | 46.00 | 0.58 | mg/L |
| 22016589 | Kim | 2011 | January 2006 - December 2007 | cross-sectional study | Korea | Asia | 173 | 3952 | Female | TC | 200.70 | 35.60 | 196.30 | 34.70 | mg/dL |
| 22016589 | Kim | 2011 | January 2006 - December 2007 | cross-sectional study | Korea | Asia | 173 | 3952 | Female | TG | 103.00 | 51.70 | 98.00 | 55.70 | mg/dL |
| 22016589 | Kim | 2011 | January 2006 - December 2007 | cross-sectional study | Korea | Asia | 173 | 3952 | Female | LDL-C | 124.80 | 31.30 | 120.20 | 31.00 | mg/dL |
| 22016589 | Kim | 2011 | January 2006 - December 2007 | cross-sectional study | Korea | Asia | 173 | 3952 | Female | HDL-C | 58.80 | 13.90 | 60.50 | 13.80 | mg/dL |
| 21331996 | Karayalcin | 2010 | May 2007 - November 2007 | cross-sectional study | Turkey | Other | 73 | 401 | Female | TC | 216.52 | 44.92 | 215.88 | 44.35 | mg/dL |
| 21331996 | Karayalcin | 2010 | May 2007 - November 2007 | cross-sectional study | Turkey | Other | 73 | 401 | Female | TG | 134.52 | 54.83 | 143.25 | 77.05 | mg/dL |
| 21331996 | Karayalcin | 2010 | May 2007 - November 2007 | cross-sectional study | Turkey | Other | 73 | 401 | Female | LDL-C | 138.33 | 38.35 | 130.74 | 40.67 | mg/dL |
| 21331996 | Karayalcin | 2010 | May 2007 - November 2007 | cross-sectional study | Turkey | Other | 73 | 401 | Female | HDL-C | 51.66 | 14.04 | 55.68 | 19.34 | mg/dL |
| 20610143 | Wang | 2010 | January 2008 - July 2008 | case-control study | China | Asia | 100 | 147 | Both | TC | 199.03 | 50.42 | 181.38 | 33.81 | mg/dL |
| 20610143 | Wang | 2010 | January 2008 - July 2008 | case-control study | China | Asia | 100 | 147 | Both | TG | 140.59 | 81.13 | 104.01 | 56.77 | mg/dL |
| 20594224 | Siddapuram | 2010 | NA | case-control study | India | Asia | 226 | 289 | Both | TC | 182.62 | 56.00 | 224.98 | 0.35 | mg/dL |
| 20594224 | Siddapuram | 2010 | NA | case-control study | India | Asia | 226 | 289 | Both | TG | 149.67 | 83.95 | 147.21 | 89.15 | mg/dL |
| 20594224 | Siddapuram | 2010 | NA | case-control study | India | Asia | 226 | 289 | Both | LDL-C | 120.31 | 43.31 | 138.90 | 39.71 | mg/dL |
| 20594224 | Siddapuram | 2010 | NA | case-control study | India | Asia | 226 | 289 | Both | HDL-C | 32.17 | 9.13 | 39.08 | 9.77 | mg/dL |
| 19366081 | Tirziu | 2008 | November 2002 - September 2007 | case-control study | Romania | Europe | 109 | 271 | Both | TC | 213.43 | 49.90 | 226.53 | 48.38 | mg/dL |
| 19366081 | Tirziu | 2008 | November 2002 - September 2007 | case-control study | Romania | Europe | 109 | 271 | Both | TG | 172.94 | 95.89 | 133.37 | 78.41 | mg/dL |
| 19366081 | Tirziu | 2008 | November 2002 - September 2007 | case-control study | Romania | Europe | 109 | 271 | Both | HDL-C | 48.84 | 14.90 | 55.39 | 13.88 | mg/dL |
| 18756051 | Chang | 2008 | January 2005 - October 2005 | cross-sectional study | Korea | Asia | 440 | 19063 | Male | TC | 196.50 | 34.30 | 195.80 | 32.30 | mg/dL |
| 18756051 | Chang | 2008 | January 2005 - October 2005 | cross-sectional study | Korea | Asia | 440 | 19063 | Male | TG | 145.10 | 83.90 | 148.50 | 89.30 | mg/dL |
| 18756051 | Chang | 2008 | January 2005 - October 2005 | cross-sectional study | Korea | Asia | 440 | 19063 | Male | LDL-C | 115.80 | 28.40 | 114.70 | 27.20 | mg/dL |
| 18756051 | Chang | 2008 | January 2005 - October 2005 | cross-sectional study | Korea | Asia | 440 | 19063 | Male | HDL-C | 50.00 | 11.00 | 50.40 | 10.30 | mg/dL |
| 18457353 | Kuo | 2008 | 2005 | cross-sectional study | China | Asia | 74 | 905 | Both | TC | 167.30 | 32.00 | 182.80 | 34.00 | mg/dL |
| 18457353 | Kuo | 2008 | 2005 | cross-sectional study | China | Asia | 74 | 905 | Both | TG | 124.20 | 37.70 | 138.00 | 116.50 | mg/dL |
| 18457353 | Kuo | 2008 | 2005 | cross-sectional study | China | Asia | 74 | 905 | Both | LDL-C | 110.40 | 28.50 | 123.80 | 33.50 | mg/dL |
| 18457353 | Kuo | 2008 | 2005 | cross-sectional study | China | Asia | 74 | 905 | Both | HDL-C | 48.80 | 10.20 | 53.00 | 13.70 | mg/dL |
| 18076041 | Andreotti | 2008 | June 1997 - May 2001 | case-control study | China | Asia | 981 | 858 | Both | TC | 170.90 | 43.85 | 182.30 | 55.65 | mg/dL |
| 18076041 | Andreotti | 2008 | June 1997 - May 2001 | case-control study | China | Asia | 981 | 858 | Both | TG | 127.40 | 68.91 | 107.30 | 67.37 | mg/dL |
| 18076041 | Andreotti | 2008 | June 1997 - May 2001 | case-control study | China | Asia | 981 | 858 | Both | LDL-C | 101.50 | 43.85 | 108.20 | 52.72 | mg/dL |
| 18076041 | Andreotti | 2008 | June 1997 - May 2001 | case-control study | China | Asia | 981 | 858 | Both | HDL-C | 37.40 | 12.53 | 43.90 | 14.65 | mg/dL |
| 17612515 | Wang | 2007 | NA | case-control study | China | Asia | 287 | 205 | Both | TC | 4.25 | 1.19 | 4.05 | 1.29 | mmol/L |
| 17612515 | Wang | 2007 | NA | case-control study | China | Asia | 287 | 205 | Both | TG | 1.65 | 1.02 | 1.67 | 1.86 | mmol/L |
| 17612515 | Wang | 2007 | NA | case-control study | China | Asia | 287 | 205 | Both | LDL-C | 2.38 | 1.19 | 2.07 | 1.15 | mmol/L |
| 17612515 | Wang | 2007 | NA | case-control study | China | Asia | 287 | 205 | Both | HDL-C | 1.24 | 0.51 | 1.24 | 0.43 | mmol/L |
| 17384433 | Mella | 2007 | NA | case-control study | Chile | America | 117 | 122 | Both | TC | 198.00 | 39.00 | 187.00 | 39.00 | mg/dL |
| 17384433 | Mella | 2007 | NA | case-control study | Germany | Europe | 184 | 184 | Both | TC | 200.00 | 53.00 | 202.00 | 55.00 | mg/dL |
| 17384433 | Mella | 2007 | NA | case-control study | Chile | America | 117 | 122 | Both | TG | 135.00 | 86.00 | 120.00 | 78.00 | mg/dL |
| 17384433 | Mella | 2007 | NA | case-control study | Germany | Europe | 184 | 184 | Both | TG | 143.00 | 79.00 | 146.00 | 105.00 | mg/dL |
| 17384433 | Mella | 2007 | NA | case-control study | Chile | America | 117 | 122 | Both | LDL-C | 124.00 | 36.00 | 119.00 | 3.00 | mg/dL |
| 17384433 | Mella | 2007 | NA | case-control study | Germany | Europe | 184 | 184 | Both | LDL-C | 122.00 | 46.00 | 125.00 | 42.00 | mg/dL |
| 17384433 | Mella | 2007 | NA | case-control study | Chile | America | 117 | 122 | Both | HDL-C | 47.00 | 11.00 | 44.00 | 11.00 | mg/dL |
| 17384433 | Mella | 2007 | NA | case-control study | Germany | Europe | 184 | 184 | Both | HDL-C | 48.00 | 19.00 | 50.00 | 20.00 | mg/dL |
| 17098593 | Acalovschi | 2006 | NA | case-control study | Romania | Europe | 34 | 68 | Both | TC | 202.80 | 34.90 | 207.20 | 62.40 | mg/dL |
| 17098593 | Acalovschi | 2006 | NA | case-control study | Romania | Europe | 34 | 68 | Both | TG | 163.80 | 69.70 | 133.20 | 70.20 | mg/dL |
| 17098593 | Acalovschi | 2006 | NA | case-control study | Romania | Europe | 34 | 68 | Both | HDL-C | 40.30 | 11.60 | 58.90 | 16.40 | mg/dL |
| 16807515 | Méndez-Sánchez | 2006 | June 2003 - April 2004 | cross-sectional study | Mexico | America | 54 | 43 | Both | TC | 208.44 | 44.54 | 203.63 | 34.15 | mg/dL |
| 16807515 | Méndez-Sánchez | 2006 | June 2003 - April 2004 | cross-sectional study | Mexico | America | 54 | 43 | Both | TG | 186.50 | 139.58 | 171.42 | 97.47 | mg/dL |
| 16807515 | Méndez-Sánchez | 2006 | June 2003 - April 2004 | cross-sectional study | Mexico | America | 54 | 43 | Both | LDL-C | 135.49 | 48.49 | 130.32 | 25.96 | mg/dL |
| 16807515 | Méndez-Sánchez | 2006 | June 2003 - April 2004 | cross-sectional study | Mexico | America | 54 | 43 | Both | HDL-C | 40.26 | 10.79 | 39.61 | 11.26 | mg/dL |
| 16534886 | Liu | 2006 | January 2002 - December 2007 | cross-sectional study | China | Asia | 126 | 2260 | Both | TC | 216.93 | 41.06 | 210.51 | 37.72 | mg/dL |
| 16534886 | Liu | 2006 | January 2002 - December 2007 | cross-sectional study | Korea | Asia | 126 | 2260 | Both | TG | 143.39 | 98.63 | 130.12 | 108.06 | mg/dL |
| 16534886 | Liu | 2006 | January 2002 - December 2007 | cross-sectional study | Italy | Europe | 126 | 2260 | Both | HDL-C | 57.02 | 16.55 | 57.69 | 15.76 | mg/dL |
| 16516330 | Nervi | 2006 | 1993 - 2000 | case-control study | Chile | America | 299 | 582 | Both | TC | 5.37 | 1.11 | 5.41 | 1.26 | mmol/L |
| 16516330 | Nervi | 2006 | 1993 - 2000 | case-control study | Chile | America | 299 | 582 | Both | TG | 1.53 | 0.96 | 1.31 | 0.67 | mmol/L |
| 16516330 | Nervi | 2006 | 1993 - 2000 | case-control study | Chile | America | 299 | 582 | Both | LDL-C | 3.36 | 0.90 | 3.44 | 0.98 | mmol/L |
| 16516330 | Nervi | 2006 | 1993 - 2000 | case-control study | Chile | America | 299 | 582 | Both | HDL-C | 1.34 | 0.31 | 1.40 | 0.34 | mmol/L |
| 16506962 | Wang | 2006 | February 2004 - September 2004 | case-control study | China | Asia | 90 | 91 | Both | TC | 200.35 | 40.41 | 197.79 | 33.18 | mg/dL |
| 16506962 | Wang | 2006 | February 2004 - September 2004 | case-control study | China | Asia | 90 | 91 | Both | TG | 143.70 | 100.94 | 119.76 | 74.74 | mg/dL |
| 16322951 | Sakuta | 2005 | NA | cross-sectional study | Japan | Asia | 39 | 926 | Female | TC | 214.00 | 34.00 | 213.00 | 31.00 | mg/dL |
| 16322951 | Sakuta | 2005 | NA | cross-sectional study | Japan | Asia | 39 | 926 | Female | TG | 143.00 | 77.00 | 146.00 | 61.00 | mg/dL |
| 16273647 | Méndez-Sánchez | 2005 | NA | case-control study | Mexico | America | 97 | 190 | Both | TC | 5.43 | 1.09 | 5.38 | 1.03 | mmol/L |
| 16273647 | Méndez-Sánchez | 2005 | NA | case-control study | Mexico | America | 97 | 190 | Both | TG | 1.89 | 1.15 | 1.71 | 0.96 | mmol/L |
| 16273647 | Méndez-Sánchez | 2005 | NA | case-control study | Mexico | America | 97 | 190 | Both | LDL-C | 3.44 | 0.85 | 3.49 | 0.85 | mmol/L |
| 16273647 | Méndez-Sánchez | 2005 | NA | case-control study | Mexico | America | 97 | 190 | Both | HDL-C | 1.19 | 0.36 | 1.22 | 0.36 | mmol/L |
| 15775677 | Volzke | 2005 | NA | cross-sectional study | Germany | Europe | 891 | 3311 | Both | TC | 5.92 | 1.25 | 5.74 | 1.24 | mmol/L |
| 15775677 | Volzke | 2005 | NA | cross-sectional study | Germany | Europe | 891 | 3311 | Both | LDL-C | 3.69 | 1.16 | 3.55 | 1.16 | mmol/L |
| 15775677 | Volzke | 2005 | NA | cross-sectional study | Germany | Europe | 891 | 3311 | Both | HDL-C | 1.46 | 0.44 | 1.41 | 0.45 | mmol/L |
| 15133863 | Jiang | 2004 | February 1998 - May 1998 | case-control study | China | Asia | 105 | 274 | Both | TC | 4.66 | 0.92 | 4.91 | 0.96 | mmol/L |
| 15133863 | Jiang | 2004 | February 1998 - May 1998 | case-control study | China | Asia | 105 | 274 | Both | TG | 1.32 | 1.15 | 1.19 | 0.82 | mmol/L |
| 15133863 | Jiang | 2004 | February 1998 - May 1998 | case-control study | China | Asia | 105 | 274 | Both | LDL-C | 2.56 | 0.67 | 2.69 | 0.73 | mmol/L |
| 15133863 | Jiang | 2004 | February 1998 - May 1998 | case-control study | China | Asia | 105 | 274 | Both | HDL-C | 1.33 | 0.36 | 1.40 | 0.34 | mmol/L |
| 14988828 | Galman | 2004 | 1992 - 2000 | cross-sectional study | Chile | America | 45 | 80 | Female | TC | 5.40 | 5.90 | 1.30 | 1.00 | mmol/L |
| 14988828 | Galman | 2004 | 1992 - 2000 | cross-sectional study | Chile | America | 20 | 20 | Female | TC | 4.80 | 1.10 | 4.70 | 1.20 | mmol/L |
| 14988828 | Galman | 2004 | 1992 - 2000 | cross-sectional study | Chile | America | 45 | 80 | Female | TG | 1.55 | 1.48 | 0.65 | 0.66 | mmol/L |
| 14988828 | Galman | 2004 | 1992 - 2000 | cross-sectional study | Chile | America | 20 | 20 | Female | TG | 1.56 | 1.05 | 1.31 | 0.53 | mmol/L |
| 14988828 | Galman | 2004 | 1992 - 2000 | cross-sectional study | Chile | America | 45 | 80 | Female | LDL-C | 3.40 | 3.80 | 1.10 | 0.90 | mmol/L |
| 14988828 | Galman | 2004 | 1992 - 2000 | cross-sectional study | Chile | America | 20 | 20 | Female | LDL-C | 2.90 | 1.00 | 2.90 | 0.90 | mmol/L |
| 14988828 | Galman | 2004 | 1992 - 2000 | cross-sectional study | Chile | America | 45 | 80 | Female | HDL-C | 1.30 | 1.40 | 0.30 | 0.30 | mmol/L |
| 14988828 | Galman | 2004 | 1992 - 2000 | cross-sectional study | Chile | America | 20 | 20 | Female | HDL-C | 1.20 | 0.40 | 1.10 | 0.30 | mmol/L |
| 12873586 | Hasegawa | 2003 | NA | case-control study | Japan | Asia | 79 | 53 | Both | TC | 159.00 | 44.44 | 173.00 | 29.12 | mg/dL |
| 12873586 | Hasegawa | 2003 | NA | case-control study | Japan | Asia | 79 | 53 | Both | TG | 81.00 | 44.44 | 97.00 | 43.68 | mg/dL |
| 12873586 | Hasegawa | 2003 | NA | case-control study | Japan | Asia | 79 | 53 | Both | LDL-C | 100.00 | 35.55 | 106.00 | 29.12 | mg/dL |
| 12873586 | Hasegawa | 2003 | NA | case-control study | Japan | Asia | 79 | 53 | Both | HDL-C | 41.00 | 8.89 | 45.00 | 7.28 | mg/dL |
| 12854167 | Gustafsson | 2003 | NA | case-control study | Sweden | Europe | 81 | 36 | Both | TC | 5.70 | 0.90 | 5.80 | 1.20 | mmol/L |
| 12854167 | Gustafsson | 2003 | NA | case-control study | Sweden | Europe | 82 | 36 | Both | TG | 1.50 | 0.91 | 1.40 | 0.60 | mmol/L |
| 12325457 | Kurtul | 2002 | NA | case-control study | Turkey | Other | 32 | 32 | Both | TC | 209.23 | 11.60 | 185.60 | 19.30 | mg/dL |
| 12325457 | Kurtul | 2002 | NA | case-control study | Turkey | Other | 32 | 32 | Both | TG | 186.91 | 9.40 | 136.40 | 23.20 | mg/dL |
| 12325457 | Kurtul | 2002 | NA | case-control study | Turkey | Other | 32 | 32 | Both | LDL-C | 132.70 | 8.00 | 95.35 | 13.70 | mg/dL |
| 12325457 | Kurtul | 2002 | NA | case-control study | Turkey | Other | 32 | 32 | Both | HDL-C | 43.35 | 3.60 | 48.40 | 7.80 | mg/dL |
| 11478494 | Devesa | 2001 | February 1991 - April 1993 | cross-sectional study | China | Asia | 92 | 572 | Female | TC | 244.47 | 58.03 | 220.71 | 48.38 | mg/dL |
| 11478494 | Devesa | 2001 | February 1991 - April 1993 | cross-sectional study | China | Asia | 34 | 564 | Male | TC | 224.38 | 44.14 | 223.08 | 48.39 | mg/dL |
| 11478494 | Devesa | 2001 | February 1991 - April 1993 | cross-sectional study | Korea | Asia | 92 | 572 | Female | TG | 123.40 | 79.96 | 90.56 | 63.11 | mg/dL |
| 11478494 | Devesa | 2001 | February 1991 - April 1993 | cross-sectional study | Korea | Asia | 34 | 564 | Male | TG | 151.85 | 131.87 | 133.20 | 90.18 | mg/dL |
| 11478494 | Devesa | 2001 | February 1991 - April 1993 | cross-sectional study | Spain | Europe | 126 | 1136 | Both | LDL-C | 151.30 | 49.46 | 141.80 | 41.66 | mg/dL |
| 11478494 | Devesa | 2001 | February 1991 - April 1993 | cross-sectional study | Italy | Europe | 126 | 1136 | Both | HDL-C | 62.10 | 15.24 | 60.60 | 16.57 | mg/dL |
| 10861277 | Misciagna | 2000 | May 1985 - June 1993 | case-control study | Spain | Europe | 54 | 162 | Male | TC | 5.03 | 0.98 | 5.20 | 1.07 | mmol/L |
| 10861277 | Misciagna | 2000 | May 1985 - June 1993 | case-control study | China | Asia | 47 | 141 | Female | TC | 5.45 | 1.32 | 5.11 | 1.05 | mmol/L |
| 10861277 | Misciagna | 2000 | May 1985 - June 1993 | case-control study | Korea | Asia | 54 | 162 | Male | TG | 1.52 | 0.73 | 1.63 | 1.34 | mmol/L |
| 10861277 | Misciagna | 2000 | May 1985 - June 1993 | case-control study | Korea | Asia | 47 | 141 | Female | TG | 1.69 | 1.32 | 1.26 | 0.92 | mmol/L |
| 10861277 | Misciagna | 2000 | May 1985 - June 1993 | case-control study | Italy | Europe | 54 | 162 | Male | HDL-C | 1.19 | 0.30 | 1.18 | 0.31 | mmol/L |
| 10861277 | Misciagna | 2000 | May 1985 - June 1993 | case-control study | Italy | Europe | 47 | 141 | Female | HDL-C | 1.26 | 0.32 | 1.34 | 0.30 | mmol/L |
| 10845572 | Han | 2000 | January 1998 - May 1998 | case-control study | China | Asia | 190 | 441 | Both | TC | 4.60 | 0.87 | 4.78 | 0.98 | mmol/L |
| 10845572 | Han | 2000 | January 1998 - May 1998 | case-control study | China | Asia | 190 | 441 | Both | TG | 1.35 | 1.05 | 1.22 | 0.90 | mmol/L |
| 10845572 | Han | 2000 | January 1998 - May 1998 | case-control study | China | Asia | 190 | 441 | Both | LDL-C | 2.55 | 0.68 | 2.64 | 0.72 | mmol/L |
| 10845572 | Han | 2000 | January 1998 - May 1998 | case-control study | China | Asia | 190 | 441 | Both | HDL-C | 1.32 | 0.32 | 1.36 | 0.34 | mmol/L |
| 10430304 | Chen | 1999 | NA | case-control study | China | Asia | 236 | 1092 | Both | TC | 192.50 | 36.10 | 192.90 | 38.10 | mg/dL |
| 10430304 | Chen | 1999 | NA | case-control study | China | Asia | 236 | 1092 | Both | TG | 160.40 | 128.80 | 138.80 | 92.90 | mg/dL |
| 10430304 | Chen | 1999 | NA | case-control study | China | Asia | 236 | 1092 | Both | LDL-C | 119.90 | 30.40 | 121.10 | 31.70 | mg/dL |
| 10430304 | Chen | 1999 | NA | case-control study | China | Asia | 236 | 1092 | Both | HDL-C | 42.80 | 12.20 | 45.50 | 14.00 | mg/dL |
| 10427869 | Duque | 1999 | August 1991 - August 1992 | cross-sectional study | Mexico | America | 113 | 1463 | Male | TC | 209.90 | 46.90 | 214.90 | 44.60 | mg/dL |
| 10427869 | Duque | 1999 | August 1991 - August 1992 | cross-sectional study | Mexico | America | 72 | 441 | Female | TC | 205.50 | 45.00 | 205.10 | 48.70 | mg/dL |
| 10427869 | Duque | 1999 | August 1991 - August 1992 | cross-sectional study | Mexico | America | 185 | 1904 | Both | TG | 5.04 | 0.57 | 5.00 | 0.58 | mg/dL |
| 10427869 | Duque | 1999 | August 1991 - August 1992 | cross-sectional study | Mexico | America | 113 | 1463 | Male | HDL-C | 42.80 | 13.40 | 42.20 | 11.90 | mg/dL |
| 10427869 | Duque | 1999 | August 1991 - August 1992 | cross-sectional study | Mexico | America | 72 | 441 | Female | HDL-C | 50.90 | 14.30 | 50.40 | 12.50 | mg/dL |
| 10395054 | Sasazuki | 1999 | October 1986 - December 1994 | cross-sectional study | Japan | Asia | 277 | 6895 | Male | TG | 4.75 | 0.50 | 4.74 | 0.83 | mg/dL |
| 10075965 | Niemi | 1999 | NA | cross-sectional study | Finland | Europe | 47 | 220 | Female | TC | 5.70 | 1.05 | 5.50 | 0.76 | mmol/L |
| 10075965 | Niemi | 1999 | NA | cross-sectional study | Finland | Europe | 17 | 242 | Male | TC | 5.10 | 0.63 | 5.80 | 0.79 | mmol/L |
| 10075965 | Niemi | 1999 | NA | cross-sectional study | Finland | Europe | 47 | 220 | Female | TG | 1.50 | 1.05 | 1.10 | 0.76 | mmol/L |
| 10075965 | Niemi | 1999 | NA | cross-sectional study | Finland | Europe | 17 | 242 | Male | TG | 1.60 | 0.84 | 1.60 | 0.79 | mmol/L |
| 10075965 | Niemi | 1999 | NA | cross-sectional study | Finland | Europe | 47 | 220 | Female | LDL-C | 3.40 | 1.05 | 3.30 | 0.76 | mmol/L |
| 10075965 | Niemi | 1999 | NA | cross-sectional study | Finland | Europe | 17 | 242 | Male | LDL-C | 3.20 | 0.84 | 3.80 | 1.59 | mmol/L |
| 10075965 | Niemi | 1999 | NA | cross-sectional study | Finland | Europe | 47 | 220 | Female | HDL-C | 1.50 | 0.35 | 1.60 | 0.76 | mmol/L |
| 10075965 | Niemi | 1999 | NA | cross-sectional study | Finland | Europe | 17 | 242 | Male | HDL-C | 1.10 | 0.21 | 1.20 | 0.79 | mmol/L |
| 9883999 | Chen | 1998 | January 1995 - July 1995 | cross-sectional study | China | Asia | 386 | 2946 | Both | TC | 4.94 | 0.96 | 4.93 | 0.93 | mmol/L |
| 9883999 | Chen | 1998 | January 1995 - July 1995 | cross-sectional study | China | Asia | 386 | 2946 | Both | TG | 1.66 | 1.39 | 1.76 | 1.42 | mmol/L |
| 9883999 | Chen | 1998 | January 1995 - July 1995 | cross-sectional study | China | Asia | 386 | 2946 | Both | LDL-C | 3.04 | 0.83 | 3.06 | 0.81 | mmol/L |
| 9883999 | Chen | 1998 | January 1995 - July 1995 | cross-sectional study | China | Asia | 386 | 2946 | Both | HDL-C | 1.18 | 0.35 | 1.13 | 0.33 | mmol/L |
| 9867103 | Borch | 1998 | NA | cross-sectional study | Sweden | Europe | 59 | 57 | Female | TC | 6.55 | 1.15 | 6.63 | 1.24 | mmol/L |
| 9867103 | Borch | 1998 | NA | cross-sectional study | Sweden | Europe | 45 | 44 | Male | TC | 6.08 | 1.06 | 6.43 | 1.18 | mmol/L |
| 9867103 | Borch | 1998 | NA | cross-sectional study | Sweden | Europe | 58 | 57 | Female | TG | 1.71 | 0.95 | 1.61 | 0.97 | mmol/L |
| 9867103 | Borch | 1998 | NA | cross-sectional study | Sweden | Europe | 45 | 44 | Male | TG | 1.87 | 0.88 | 1.64 | 0.79 | mmol/L |
| 9867103 | Borch | 1998 | NA | cross-sectional study | Sweden | Europe | 45 | 41 | Female | LDL-C | 4.09 | 1.11 | 4.11 | 1.02 | mmol/L |
| 9867103 | Borch | 1998 | NA | cross-sectional study | Sweden | Europe | 24 | 24 | Male | LDL-C | 3.94 | 0.92 | 3.98 | 1.02 | mmol/L |
| 9867103 | Borch | 1998 | NA | cross-sectional study | Sweden | Europe | 51 | 45 | Female | HDL-C | 1.54 | 0.44 | 1.60 | 0.53 | mmol/L |
| 9867103 | Borch | 1998 | NA | cross-sectional study | Sweden | Europe | 28 | 28 | Male | HDL-C | 1.12 | 0.27 | 1.27 | 0.40 | mmol/L |
| 9594308 | Fu | 1997 | January 1994 - June 1994 | case-control study | China | Asia | 47 | 19 | Both | TC | 4.17 | 1.14 | 4.48 | 0.77 | mmol/L |
| 9594308 | Fu | 1997 | January 1994 - June 1994 | case-control study | China | Asia | 47 | 19 | Both | TG | 1.46 | 0.64 | 1.24 | 0.44 | mmol/L |
| 9594308 | Fu | 1997 | January 1994 - June 1994 | case-control study | China | Asia | 47 | 19 | Both | LDL-C | 1.81 | 0.98 | 2.34 | 1.10 | mmol/L |
| 9594308 | Fu | 1997 | January 1994 - June 1994 | case-control study | China | Asia | 47 | 19 | Both | HDL-C | 1.11 | 0.62 | 1.15 | 0.30 | mmol/L |
| 9558292 | Miquel | 1998 | NA | cross-sectional study | Chile | America | 52 | 40 | Both | TC | 181.00 | 10.00 | 205.00 | 7.00 | mg/dL |
| 9529852 | Singh | 1997 | NA | cross-sectional study | India | Asia | 50 | 26 | Both | TC | 262.89 | 39.17 | 224.69 | 29.25 | mg/dL |
| 9529852 | Singh | 1997 | NA | cross-sectional study | India | Asia | 50 | 26 | Both | TG | 157.01 | 25.65 | 124.06 | 24.65 | mg/dL |
| 9529852 | Singh | 1997 | NA | cross-sectional study | India | Asia | 50 | 26 | Both | LDL-C | 180.83 | 24.86 | 121.80 | 22.44 | mg/dL |
| 9529852 | Singh | 1997 | NA | cross-sectional study | India | Asia | 50 | 26 | Both | HDL-C | 42.69 | 10.02 | 65.28 | 12.53 | mg/dL |
| 9027646 | Tang | 1996 | NA | cross-sectional study | China | Asia | 51 | 19 | Both | TC | 138.23 | 28.94 | 144.71 | 35.22 | mg/dL |
| 9027646 | Tang | 1996 | NA | cross-sectional study | China | Asia | 51 | 19 | Both | TG | 101.73 | 49.95 | 91.11 | 30.24 | mg/dL |
| 9027646 | Tang | 1996 | NA | cross-sectional study | China | Asia | 51 | 19 | Both | LDL-C | 99.89 | 25.45 | 113.51 | 29.09 | mg/dL |
| 9027646 | Tang | 1996 | NA | cross-sectional study | China | Asia | 51 | 19 | Both | HDL-C | 26.44 | 7.11 | 23.12 | 4.57 | mg/dL |
| 8942740 | Bertomeu | 1996 | April 1992 - May 1994 | case-control study | Spain | Europe | 160 | 125 | Both | TC | 243.00 | 49.33 | 228.00 | 45.84 | mg/dL |
| 8942740 | Bertomeu | 1996 | April 1992 - May 1994 | case-control study | Spain | Europe | 160 | 125 | Both | TG | 133.00 | 73.36 | 126.00 | 79.38 | mg/dL |
| 8942740 | Bertomeu | 1996 | April 1992 - May 1994 | case-control study | Spain | Europe | 160 | 125 | Both | LDL-C | 168.00 | 45.54 | 156.00 | 51.43 | mg/dL |
| 8942740 | Bertomeu | 1996 | April 1992 - May 1994 | case-control study | Spain | Europe | 160 | 125 | Both | HDL-C | 50.00 | 12.65 | 53.00 | 16.77 | mg/dL |
| 8696071 | Villalpando | 1997 | NA | cross-sectional study | Mexico | America | 124 | 1211 | Female | TC | 196.60 | 43.60 | 190.90 | 44.20 | mg/dL |
| 8696071 | Villalpando | 1997 | NA | cross-sectional study | Mexico | America | 19 | 920 | Male | TC | 178.60 | 35.80 | 191.80 | 41.90 | mg/dL |
| 8696071 | Villalpando | 1997 | NA | cross-sectional study | Mexico | America | 19 | 920 | Male | TG | 226.30 | 103.60 | 246.40 | 175.50 | mg/dL |
| 8696071 | Villalpando | 1997 | NA | cross-sectional study | Mexico | America | 124 | 1211 | Female | TG | 195.20 | 93.50 | 185.30 | 123.60 | mg/dL |
| 8696071 | Villalpando | 1997 | NA | cross-sectional study | Mexico | America | 19 | 920 | Male | LDL-C | 117.10 | 33.30 | 123.40 | 38.00 | mg/dL |
| 8696071 | Villalpando | 1997 | NA | cross-sectional study | Mexico | America | 124 | 1211 | Female | LDL-C | 126.10 | 36.80 | 122.60 | 40.40 | mg/dL |
| 8696071 | Villalpando | 1997 | NA | cross-sectional study | Mexico | America | 19 | 920 | Male | HDL-C | 26.40 | 4.10 | 30.30 | 8.50 | mg/dL |
| 8696071 | Villalpando | 1997 | NA | cross-sectional study | Mexico | America | 124 | 1211 | Female | HDL-C | 34.50 | 8.50 | 34.80 | 9.00 | mg/dL |
| 7921309 | Shinchi | 1993 | October 1986 - December 1990 | case-control study | Japan | Asia | 61 | 2494 | Male | TC | 189.90 | 30.46 | 195.30 | 34.96 | mg/dL |
| 7921309 | Shinchi | 1993 | October 1986 - December 1990 | case-control study | Japan | Asia | 61 | 2494 | Male | TG | 4.79 | 0.55 | 4.72 | 0.50 | mg/dL |
| 7921309 | Shinchi | 1993 | October 1986 - December 1990 | case-control study | Japan | Asia | 61 | 2494 | Male | LDL-C | 109.70 | 32.80 | 116.50 | 34.96 | mg/dL |
| 7921309 | Shinchi | 1993 | October 1986 - December 1990 | case-control study | Japan | Asia | 61 | 2494 | Male | HDL-C | 53.20 | 14.06 | 53.70 | 14.98 | mg/dL |
| 7813691 | Loria | 1994 | November 1985 - April 1986 | cross-sectional study | Italy | Europe | 26 | 967 | Male | TC | 205.76 | 6.83 | 210.82 | 250.95 | mg/100 ml |
| 7813691 | Loria | 1994 | November 1985 - April 1986 | cross-sectional study | Italy | Europe | 35 | 837 | Female | TC | 203.49 | 7.22 | 197.11 | 167.22 | mg/100 ml |
| 7813691 | Loria | 1994 | November 1985 - April 1986 | cross-sectional study | Italy | Europe | 26 | 967 | Male | TG | 2.06 | 0.05 | 2.07 | 1.55 | mg/100 ml |
| 7813691 | Loria | 1994 | November 1985 - April 1986 | cross-sectional study | Italy | Europe | 35 | 837 | Female | TG | 1.92 | 0.06 | 1.96 | 0.87 | mg/100 ml |
| 7813691 | Loria | 1994 | November 1985 - April 1986 | cross-sectional study | Italy | Europe | 26 | 967 | Male | HDL-C | 49.11 | 1.84 | 52.22 | 67.79 | mg/100 ml |
| 7813691 | Loria | 1994 | November 1985 - April 1986 | cross-sectional study | Italy | Europe | 35 | 837 | Female | HDL-C | 58.06 | 2.66 | 53.49 | 62.20 | mg/100 ml |
| 7616125 | Juvonen | 1995 | August 1989 - February 1990 | case-control study | Finland | Europe | 93 | 92 | Both | TC | 5.32 | 1.16 | 5.71 | 1.15 | mmol/L |
| 7616125 | Juvonen | 1995 | August 1989 - February 1990 | case-control study | Finland | Europe | 93 | 92 | Both | TG | 1.39 | 0.68 | 1.30 | 0.58 | mmol/L |
| 7616125 | Juvonen | 1995 | August 1989 - February 1990 | case-control study | Finland | Europe | 93 | 92 | Both | LDL-C | 2.99 | 0.96 | 3.41 | 2.40 | mmol/L |
| 7616125 | Juvonen | 1995 | August 1989 - February 1990 | case-control study | Finland | Europe | 93 | 92 | Both | HDL-C | 1.30 | 0.29 | 1.43 | 0.38 | mmol/L |
| 7601405 | Sarin | 1995 | NA | cross-sectional study | India | Asia | 105 | 105 | Both | TC | 197.00 | 11.00 | 181.00 | 13.00 | mg/dL |
| 7601405 | Sarin | 1995 | NA | cross-sectional study | India | Asia | 105 | 105 | Both | TG | 129.00 | 14.00 | 125.00 | 9.00 | mg/dL |
| 6432171 | Scragg | 1984 | December 1978 - September 1980 | case-control study | Australia | Oceania | 127 | 182 | Female | TC | 5.48 | 0.09 | 5.57 | 0.09 | mmol/L |
| 6432171 | Scragg | 1984 | December 1978 - September 1980 | case-control study | Australia | Oceania | 46 | 102 | Male | TC | 5.41 | 0.17 | 5.39 | 0.11 | mmol/L |
| 6432171 | Scragg | 1984 | December 1978 - September 1980 | case-control study | Australia | Oceania | 124 | 175 | Female | TG | 1.39 | 0.08 | 1.17 | 0.05 | mmol/L |
| 6432171 | Scragg | 1984 | December 1978 - September 1980 | case-control study | Australia | Oceania | 44 | 99 | Male | TG | 1.74 | 0.20 | 1.49 | 0.09 | mmol/L |
| 6432171 | Scragg | 1984 | December 1978 - September 1980 | case-control study | Australia | Oceania | 127 | 182 | Female | HDL-C | 1.16 | 0.02 | 1.23 | 0.02 | mmol/L |
| 6432171 | Scragg | 1984 | December 1978 - September 1980 | case-control study | Australia | Oceania | 46 | 102 | Male | HDL-C | 0.96 | 0.03 | 1.05 | 0.02 | mmol/L |
| 3391520 | GREPCO | 1988 | NA | cross-sectional study | Italy | Europe | 65 | 1137 | Male | TC | 217.30 | 40.30 | 209.50 | 43.80 | mg/dL |
| 3391520 | GREPCO | 1988 | NA | cross-sectional study | Italy | Europe | 66 | 979 | Female | TC | 205.90 | 39.90 | 202.80 | 37.00 | mg/dL |
| 3391520 | GREPCO | 1988 | NA | cross-sectional study | Italy | Europe | 65 | 1137 | Male | LDL-C | 144.80 | 37.20 | 133.50 | 47.40 | mg/dL |
| 3391520 | GREPCO | 1988 | NA | cross-sectional study | Italy | Europe | 66 | 979 | Female | LDL-C | 132.10 | 36.10 | 128.60 | 41.50 | mg/dL |
| 3391520 | GREPCO | 1988 | NA | cross-sectional study | Italy | Europe | 65 | 1137 | Male | HDL-C | 44.00 | 11.20 | 39.20 | 12.10 | mg/dL |
| 3391520 | GREPCO | 1988 | NA | cross-sectional study | Italy | Europe | 66 | 979 | Female | HDL-C | 56.60 | 11.00 | 53.10 | 14.70 | mg/dL |
| 3391520 | GREPCO | 1988 | NA | cross-sectional study | Italy | Europe | 65 | 1137 | Male | TG | 4.80 | 0.70 | 5.00 | 0.80 | mmol/L |
| 3391520 | GREPCO | 1988 | NA | cross-sectional study | Italy | Europe | 66 | 979 | Female | TG | 4.40 | 0.30 | 4.50 | 0.60 | mmol/L |
| 3074459 | Mellstrom | 1988 | 1906 - 1907 | cross-sectional study | Sweden | Europe | 29 | 54 | Female | TC | 6.29 | 0.96 | 6.38 | 1.26 | mmol/L |
| 3074459 | Mellstrom | 1988 | 1906 - 1907 | cross-sectional study | Sweden | Europe | 29 | 54 | Female | TG | 1.68 | 0.76 | 1.34 | 0.68 | mmol/L |
| 1853863 | Mohr | 1991 | 1984 - 1987 | cross-sectional study | USA | America | 214 | 1089 | Female | TC | 225.00 | 39.40 | 229.60 | 39.10 | mg/dL |
| 1853863 | Mohr | 1991 | 1984 - 1987 | cross-sectional study | USA | America | 214 | 1089 | Female | TG | 122.50 | 1.70 | 98.00 | 1.70 | mg/dL |
| 1853863 | Mohr | 1991 | 1984 - 1987 | cross-sectional study | USA | America | 214 | 1089 | Female | LDL-C | 134.50 | 36.70 | 138.10 | 38.00 | mg/dL |
| 1853863 | Mohr | 1991 | 1984 - 1987 | cross-sectional study | USA | America | 214 | 1089 | Female | HDL-C | 63.70 | 18.60 | 69.50 | 18.90 | mg/dL |

TC: total cholesterol, TG: triglycerides, LDL: low density lipoprotein cholesterol, HDL: high density lipoprotein cholesterol, NA: not available.

**Appendix Table 6.** The characteristics of the included publications regarding the OR and 95%CI of the blood lipid levels on GSD in meta-analysis

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **PMID** | **Author** | **Year** | **Period** | **Study\_design** | **Country** | **Geographic background** | **Cases** | **Controls** | **Sex** | **Traits** | **Comparison** | **OR** | **LCI** | **UCI** |
| 32192520 | Wang | 2020 | January 2014 - January 2015 | cross-sectional study | China | Asia | 168092 | 1900432 | Both | TC | High vs Low | 1.04 | 1.02 | 1.06 |
| 32192520 | Wang | 2020 | January 2014 - January 2015 | cross-sectional study | China | Asia | 168092 | 1900432 | Both | TG | High vs Low | 1.00 | 0.99 | 1.02 |
| 32192520 | Wang | 2020 | January 2014 - January 2015 | cross-sectional study | China | Asia | 168092 | 1900432 | Both | LDL-C | High vs Low | 1.12 | 1.09 | 1.15 |
| 32192520 | Wang | 2020 | January 2014 - January 2015 | cross-sectional study | China | Asia | 168092 | 1900432 | Both | HDL-C | High vs Low | 0.81 | 0.79 | 0.83 |
| 32166900 | Song | 2020 | NA | cross-sectional study | China | Asia | 274 | 3735 | Both | TC | High vs Low | 1.26 | 0.81 | 1.95 |
| 32166900 | Song | 2020 | NA | cross-sectional study | China | Asia | 274 | 3735 | Both | TG | High vs Low | 1.35 | 0.87 | 2.12 |
| 32166900 | Song | 2020 | NA | cross-sectional study | China | Asia | 274 | 3735 | Both | LDL-C | High vs Low | 1.21 | 0.94 | 1.56 |
| 32166900 | Song | 2020 | NA | cross-sectional study | China | Asia | 274 | 3735 | Both | HDL-C | High vs Low | 0.89 | 0.49 | 1.61 |
| 32011459 | Gu | 2020 | July 2010 - December 2012 | case-control study | China | Asia | 94 | 2194 | Both | TC | Per unit | 0.95 | 0.83 | 1.09 |
| 32011459 | Gu | 2020 | July 2010 - December 2012 | case-control study | China | Asia | 94 | 2194 | Both | TG | Per unit | 0.68 | 0.41 | 1.14 |
| 32011459 | Gu | 2020 | July 2010 - December 2012 | case-control study | China | Asia | 94 | 2194 | Both | LDL-C | Per unit | 1.92 | 1.31 | 2.81 |
| 32011459 | Gu | 2020 | July 2010 - December 2012 | case-control study | China | Asia | 94 | 2194 | Both | HDL-C | Per unit | 1.01 | 0.83 | 1.23 |
| 31277096 | Kim | 2019 | January 2009 - December 2017 | cross-sectional study | Korea | Asia | 355 | 7531 | Both | TC | High vs Low | 0.84 | 0.59 | 1.18 |
| 31277096 | Kim | 2019 | January 2009 - December 2017 | cross-sectional study | Korea | Asia | 355 | 7531 | Both | TG | High vs Low | 1.05 | 0.75 | 1.47 |
| 31277096 | Kim | 2019 | January 2009 - December 2017 | cross-sectional study | Korea | Asia | 355 | 7531 | Both | LDL-C | High vs Low | 1.32 | 0.73 | 2.41 |
| 31277096 | Kim | 2019 | January 2009 - December 2017 | cross-sectional study | Korea | Asia | 355 | 7531 | Both | HDL-C | High vs Low | 0.60 | 0.43 | 0.83 |
| 30794560 | Kim | 2019 | June 2014 - May 2015 | cross-sectional study | Korea | Asia | 806 | 36495 | Male | TC | Per unit | 0.85 | 0.70 | 1.02 |
| 30794560 | Kim | 2019 | June 2014 - May 2015 | cross-sectional study | Korea | Asia | 554 | 21544 | Female | TC | Per unit | 0.88 | 0.69 | 1.12 |
| 30794560 | Kim | 2019 | June 2014 - May 2015 | cross-sectional study | Korea | Asia | 806 | 36495 | Male | LDL-C | Per unit | 1.09 | 0.90 | 1.33 |
| 30794560 | Kim | 2019 | June 2014 - May 2015 | cross-sectional study | Korea | Asia | 554 | 21544 | Female | LDL-C | Per unit | 1.07 | 0.84 | 1.36 |
| 30794560 | Kim | 2019 | June 2014 - May 2015 | cross-sectional study | Korea | Asia | 806 | 36495 | Male | HDL-C | Per unit | 0.86 | 0.74 | 0.99 |
| 30794560 | Kim | 2019 | June 2014 - May 2015 | cross-sectional study | Korea | Asia | 554 | 21544 | Female | HDL-C | Per unit | 0.75 | 0.57 | 0.97 |
| 30720747 | Chang | 2019 | 2007 - December 2014 | cohort study | China | Asia | 104 | 4735 | Both | TC | High vs Low | 1.69 | 1.12 | 2.55 |
| 30498320 | Dhamnetiya | 2018 | January 2013 - December 2013 | case-control study | India | Asia | 120 | 120 | Both | TC | Per unit | 1.01 | 1.00 | 1.02 |
| 30498320 | Dhamnetiya | 2018 | January 2013 - December 2013 | case-control study | India | Asia | 120 | 120 | Both | TG | Per unit | 1.01 | 1.00 | 1.02 |
| 30498320 | Dhamnetiya | 2018 | January 2013 - December 2013 | case-control study | India | Asia | 120 | 120 | Both | LDL-C | Per unit | 1.02 | 1.00 | 1.03 |
| 30498320 | Dhamnetiya | 2018 | January 2013 - December 2013 | case-control study | India | Asia | 120 | 120 | Both | HDL-C | Per unit | 0.97 | 0.93 | 1.00 |
| 29851796 | Hu | 2018 | September 2012 - August 2013 | cross-sectional study | China | Asia | 404 | 8085 | Both | TC | High vs Low | 1.05 | 0.76 | 1.44 |
| 29851796 | Hu | 2018 | September 2012 - August 2013 | cross-sectional study | China | Asia | 404 | 8085 | Both | TG | High vs Low | 0.99 | 0.76 | 1.30 |
| 29851796 | Hu | 2018 | September 2012 - August 2013 | cross-sectional study | China | Asia | 404 | 8085 | Both | LDL-C | High vs Low | 1.01 | 0.73 | 1.38 |
| 29851796 | Hu | 2018 | September 2012 - August 2013 | cross-sectional study | China | Asia | 404 | 8085 | Both | HDL-C | High vs Low | 0.97 | 0.73 | 1.31 |
| 29788702 | Kwon | 2018 | January 2003 - December 2015 | cross-sectional study | Korea | Asia | 821 | 19942 | Both | TC | High vs Low | 0.90 | 0.72 | 1.11 |
| 29788702 | Kwon | 2018 | January 2003 - December 2015 | cross-sectional study | Korea | Asia | 821 | 19942 | Both | TG | High vs Low | 1.04 | 0.74 | 1.45 |
| 29788702 | Kwon | 2018 | January 2003 - December 2015 | cross-sectional study | Korea | Asia | 821 | 19942 | Both | LDL-C | High vs Low | 1.02 | 0.75 | 1.38 |
| 29788702 | Kwon | 2018 | January 2003 - December 2015 | cross-sectional study | Korea | Asia | 821 | 19942 | Both | HDL-C | High vs Low | 0.60 | 0.49 | 0.74 |
| 28353587 | Kim | 2017 | January 2014 - December 2014 | cross-sectional study | Korea | Asia | 773 | 17193 | Male | TG | High vs Low | 0.96 | 0.82 | 1.13 |
| 28353587 | Kim | 2017 | January 2014 - December 2014 | cross-sectional study | Korea | Asia | 503 | 12075 | Female | TG | High vs Low | 1.55 | 1.23 | 1.96 |
| 28353587 | Kim | 2017 | January 2014 - December 2014 | cross-sectional study | Korea | Asia | 773 | 17193 | Male | LDL-C | High vs Low | 0.91 | 0.78 | 1.07 |
| 28353587 | Kim | 2017 | January 2014 - December 2014 | cross-sectional study | Korea | Asia | 503 | 12075 | Female | HDL-C | High vs Low | 0.95 | 0.76 | 1.19 |
| 27232657 | Shabanzadeh | 2016 | 1982 - 1993 | cohort study | Denmark | Europe | 256 | 2592 | Both | TG | Per unit | 1.08 | 0.97 | 1.21 |
| 27232657 | Shabanzadeh | 2016 | 1982 - 1993 | cohort study | Denmark | Europe | 256 | 2592 | Both | HDL-C | Per unit | 0.82 | 0.57 | 1.19 |
| 26573029 | Ansari-Moghaddam | 2015 | 2012 | cross-sectional study | Iran | Asia | 40 | 1522 | Both | TC | High vs Low | 1.14 | 0.60 | 2.18 |
| 26573029 | Ansari-Moghaddam | 2015 | 2012 | cross-sectional study | Iran | Asia | 40 | 1522 | Both | TG | High vs Low | 1.60 | 0.79 | 3.22 |
| 26573029 | Ansari-Moghaddam | 2015 | 2012 | cross-sectional study | Iran | Asia | 40 | 1522 | Both | LDL-C | High vs Low | 0.89 | 0.46 | 1.72 |
| 26573029 | Ansari-Moghaddam | 2015 | 2012 | cross-sectional study | Iran | Asia | 40 | 1522 | Both | HDL-C | High vs Low | 0.51 | 0.26 | 0.99 |
| 26269681 | Zhang | 2015 | January 2010 - January 2014 | cross-sectional study | China | Asia | 882 | 9134 | Both | TC | Per unit | 1.02 | 1.01 | 1.03 |
| 26269681 | Zhang | 2015 | January 2010 - January 2014 | cross-sectional study | China | Asia | 882 | 9134 | Both | TG | Per unit | 0.89 | 0.60 | 0.98 |
| 26269681 | Zhang | 2015 | January 2010 - January 2014 | cross-sectional study | China | Asia | 882 | 9134 | Both | LDL-C | Per unit | 1.00 | 0.90 | 1.02 |
| 26225710 | Dwivedi | 2015 | NA | case-control study | India | Asia | 102 | 256 | Both | TG | Per unit | 1.01 | 1.00 | 1.02 |
| 26225710 | Dwivedi | 2015 | NA | case-control study | India | Asia | 102 | 256 | Both | HDL-C | Per unit | 0.93 | 0.90 | 0.95 |
| 25521621 | Chen | 2014 | October 2007 - November 2010 | cross-sectional study | China | Asia | 141 | 1580 | Both | TC | Per unit | 1.00 | 0.99 | 1.00 |
| 25521621 | Chen | 2014 | October 2007 - November 2010 | cross-sectional study | China | Asia | 141 | 1580 | Both | TG | Per unit | 1.00 | 0.99 | 1.00 |
| 25521621 | Chen | 2014 | October 2007 - November 2010 | cross-sectional study | China | Asia | 141 | 1580 | Both | LDL-C | Per unit | 1.00 | 0.99 | 1.01 |
| 25521621 | Chen | 2014 | October 2007 - November 2010 | cross-sectional study | China | Asia | 141 | 1580 | Both | HDL-C | Per unit | 1.00 | 0.98 | 1.01 |
| 25070766 | Lin | 2014 | 2011 - 2012 | cross-sectional study | China | Asia | 734 | 11180 | Both | TG | High vs Low | 1.25 | 1.05 | 1.49 |
| 25070766 | Lin | 2014 | 2011 - 2012 | cross-sectional study | China | Asia | 734 | 11180 | Both | HDL-C | High vs Low | 0.63 | 0.54 | 0.74 |
| 25070766 | Lin | 2014 | 2011 - 2012 | cross-sectional study | China | Asia | 734 | 11180 | Both | TG | Per unit | 1.00 | 1.00 | 1.10 |
| 25070766 | Lin | 2014 | 2011 - 2012 | cross-sectional study | China | Asia | 734 | 11180 | Both | HDL-C | Per unit | 0.99 | 0.98 | 0.99 |
| 24989169 | Lee | 2014 | January 2000 - August 2009 | cross-sectional study | China | Asia | 768 | 11265 | Both | TC | Per unit | 1.02 | 1.00 | 1.04 |
| 24989169 | Lee | 2014 | January 2000 - August 2009 | cross-sectional study | China | Asia | 768 | 11265 | Both | TG | Per unit | 0.99 | 0.98 | 1.00 |
| 24989169 | Lee | 2014 | January 2000 - August 2009 | cross-sectional study | China | Asia | 768 | 11265 | Both | HDL-C | Per unit | 0.92 | 0.85 | 0.99 |
| 23736795 | Takahashi | 2014 | 2010 | cross-sectional study | Japan | Asia | 694 | 14857 | Both | TG | Per unit | 1.01 | 1.01 | 1.01 |
| 23736795 | Takahashi | 2014 | 2010 | cross-sectional study | Japan | Asia | 694 | 14857 | Both | LDL-C | Per unit | 1.00 | 1.00 | 1.00 |
| 23736795 | Takahashi | 2014 | 2010 | cross-sectional study | Japan | Asia | 694 | 14857 | Both | HDL-C | Per unit | 1.00 | 0.99 | 1.00 |
| 22568413 | Xu | 2012 | January 2007 - June 2010 | cross-sectional study | China | Asia | 2527 | 53569 | Both | TC | High vs Low | 1.04 | 0.83 | 1.31 |
| 22568413 | Xu | 2012 | January 2007 - June 2010 | cross-sectional study | China | Asia | 2527 | 53569 | Both | TG | High vs Low | 0.93 | 0.82 | 1.06 |
| 22568413 | Xu | 2012 | January 2007 - June 2010 | cross-sectional study | China | Asia | 2527 | 53569 | Both | LDL-C | High vs Low | 0.87 | 0.74 | 1.03 |
| 22568413 | Xu | 2012 | January 2007 - June 2010 | cross-sectional study | China | Asia | 2527 | 53569 | Both | HDL-C | High vs Low | 0.93 | 0.77 | 1.14 |
| 22016589 | Kim | 2011 | January 2006 - December 2007 | cross-sectional study | Korea | Asia | 173 | 3952 | Female | HDL-C | High vs Low | 0.55 | 0.33 | 0.93 |
| 21893698 | Krawczyk | 2011 | NA | case-control study | Romania | Europe | 229 | 258 | Both | TC | Per unit | 0.99 | 0.98 | 1.00 |
| 21893698 | Krawczyk | 2011 | NA | case-control study | Romania | Europe | 229 | 258 | Both | TG | Per unit | 1.00 | 1.00 | 1.01 |
| 21893698 | Krawczyk | 2011 | NA | case-control study | Romania | Europe | 229 | 258 | Both | LDL-C | Per unit | 0.99 | 0.99 | 1.00 |
| 21893698 | Krawczyk | 2011 | NA | case-control study | Romania | Europe | 229 | 258 | Both | HDL-C | Per unit | 0.99 | 0.97 | 1.00 |
| 21623190 | Banim | 2011 | 1993 and 1997 - June 2007 | cohort study | USA | America | 95 | 11093 | Male | TC | High vs Low | 0.68 | 0.36 | 1.25 |
| 21623190 | Banim | 2011 | 1993 and 1997 - June 2007 | cohort study | USA | America | 201 | 12874 | Female | TC | High vs Low | 1.14 | 0.70 | 1.72 |
| 21623190 | Banim | 2011 | 1993 and 1997 - June 2007 | cohort study | USA | America | 95 | 11093 | Male | TG | High vs Low | 2.02 | 1.03 | 3.98 |
| 21623190 | Banim | 2011 | 1993 and 1997 - June 2007 | cohort study | USA | America | 201 | 12874 | Female | TG | High vs Low | 2.43 | 1.52 | 3.90 |
| 21623190 | Banim | 2011 | 1993 and 1997 - June 2007 | cohort study | USA | America | 201 | 12874 | Female | LDL-C | High vs Low | 1.13 | 0.72 | 1.77 |
| 21623190 | Banim | 2011 | 1993 and 1997 - June 2007 | cohort study | USA | America | 95 | 11093 | Male | LDL-C | High vs Low | 1.05 | 0.56 | 1.95 |
| 21623190 | Banim | 2011 | 1993 and 1997 - June 2007 | cohort study | USA | America | 201 | 12874 | Female | HDL-C | High vs Low | 0.55 | 0.36 | 0.85 |
| 21623190 | Banim | 2011 | 1993 and 1997 - June 2007 | cohort study | USA | America | 95 | 11093 | Male | HDL-C | High vs Low | 0.22 | 0.09 | 0.52 |
| 20610143 | Wang | 2010 | January 2008 - July 2008 | case-control study | China | Asia | 100 | 147 | Both | TC | Per unit | 1.02 | 1.01 | 1.04 |
| 20610143 | Wang | 2010 | January 2008 - July 2008 | case-control study | China | Asia | 100 | 147 | Both | TG | Per unit | 1.01 | 0.99 | 1.02 |
| 19847878 | Halldestam | 2009 | NA | cohort study | Sweden | Europe | 42 | 503 | Both | TG | Per unit | 0.90 | 0.42 | 1.90 |
| 19847878 | Halldestam | 2009 | NA | cohort study | Sweden | Europe | 42 | 503 | Both | LDL-C | Per unit | 1.59 | 1.32 | 1.91 |
| 19847878 | Halldestam | 2009 | NA | cohort study | Sweden | Europe | 42 | 503 | Both | HDL-C | Per unit | 1.29 | 0.49 | 3.42 |
| 19814821 | Walcher | 2009 | November 2002 - December 2002 | cross-sectional study | Germany | Europe | 167 | 1962 | Both | TC | Per unit | 0.65 | 0.52 | 0.79 |
| 19814821 | Walcher | 2009 | November 2002 - December 2002 | cross-sectional study | Germany | Europe | 167 | 1962 | Both | TG | Per unit | 0.91 | 0.79 | 1.04 |
| 19814821 | Walcher | 2009 | November 2002 - December 2002 | cross-sectional study | Germany | Europe | 167 | 1962 | Both | LDL-C | Per unit | 0.69 | 0.55 | 0.86 |
| 19814821 | Walcher | 2009 | November 2002 - December 2002 | cross-sectional study | Germany | Europe | 167 | 1962 | Both | HDL-C | Per unit | 0.63 | 0.39 | 1.03 |
| 19370788 | Sun | 2009 | January 2007 - December 2007 | cross-sectional study | China | Asia | 384 | 3189 | Both | TC | High vs Low | 1.70 | 1.20 | 2.43 |
| 19370788 | Sun | 2009 | January 2007 - December 2007 | cross-sectional study | China | Asia | 384 | 3189 | Both | TG | High vs Low | 1.67 | 1.31 | 2.13 |
| 19370788 | Sun | 2009 | January 2007 - December 2007 | cross-sectional study | China | Asia | 384 | 3189 | Both | LDL-C | High vs Low | 1.71 | 1.09 | 2.68 |
| 19370788 | Sun | 2009 | January 2007 - December 2007 | cross-sectional study | China | Asia | 384 | 3189 | Both | HDL-C | High vs Low | 0.48 | 0.31 | 0.74 |
| 19366081 | Tirziu | 2008 | November 2002 - September 2007 | case-control study | Romania | Europe | 109 | 271 | Both | HDL-C | Per unit | 0.98 | 0.96 | 1.00 |
| 18785280 | Festi | 2008 | 1985 and 1988 - 10 years later | cross-sectional study | Italy | Europe | 485 | 9032 | Both | TC | Per unit | 1.00 | 0.99 | 1.00 |
| 18785280 | Festi | 2008 | 1985 and 1988 - 10 years later | cross-sectional study | Italy | Europe | 485 | 9032 | Both | TG | Per unit | 1.00 | 1.00 | 1.00 |
| 18785280 | Festi | 2008 | 1985 and 1988 - 10 years later | cross-sectional study | Italy | Europe | 485 | 9032 | Both | HDL-C | Per unit | 0.99 | 0.98 | 1.00 |
| 18076041 | Andreotti | 2008 | June 1997 - May 2001 | case-control study | China | Asia | 981 | 858 | Both | TC | High vs Low | 0.84 | 0.54 | 1.31 |
| 18076041 | Andreotti | 2008 | June 1997 - May 2001 | case-control study | China | Asia | 981 | 858 | Both | TG | High vs Low | 1.43 | 1.08 | 1.90 |
| 18076041 | Andreotti | 2008 | June 1997 - May 2001 | case-control study | China | Asia | 981 | 858 | Both | LDL-C | High vs Low | 0.91 | 0.59 | 1.42 |
| 18076041 | Andreotti | 2008 | June 1997 - May 2001 | case-control study | China | Asia | 981 | 858 | Both | HDL-C | High vs Low | 0.44 | 0.30 | 0.64 |
| 16984599 | Chen | 2006 | August 2003 - April 2004 | cross-sectional study | China | Asia | 74 | 1518 | Male | TC | High vs Low | 0.52 | 0.16 | 1.52 |
| 16984599 | Chen | 2006 | August 2003 - April 2004 | cross-sectional study | China | Asia | 94 | 1647 | Female | TC | High vs Low | 2.19 | 1.18 | 4.05 |
| 16984599 | Chen | 2006 | August 2003 - April 2004 | cross-sectional study | China | Asia | 94 | 1647 | Female | TG | High vs Low | 2.12 | 1.29 | 3.46 |
| 16984599 | Chen | 2006 | August 2003 - April 2004 | cross-sectional study | China | Asia | 74 | 1518 | Male | TG | High vs Low | 1.16 | 0.66 | 2.03 |
| 16534886 | Liu | 2006 | January 2002 - December 2007 | cross-sectional study | China | Asia | 126 | 2260 | Both | TC | High vs Low | 0.99 | 0.64 | 1.53 |
| 16534886 | Liu | 2006 | January 2002 - December 2007 | cross-sectional study | China | Asia | 126 | 2260 | Both | TG | High vs Low | 1.25 | 0.75 | 2.08 |
| 16534886 | Liu | 2006 | January 2002 - December 2007 | cross-sectional study | China | Asia | 126 | 2260 | Both | HDL-C | High vs Low | 0.50 | 0.17 | 1.44 |
| 16516330 | Nervi | 2006 | 1993 - 2000 | case-control study | Chile | America | 299 | 582 | Female | TG | High vs Low | 0.83 | 0.63 | 1.25 |
| 16516330 | Nervi | 2006 | 1993 - 2000 | case-control study | Chile | America | 299 | 582 | Female | HDL-C | High vs Low | 0.67 | 0.50 | 0.91 |
| 16322951 | Sakuta | 2005 | NA | cross-sectional study | Japan | Asia | 39 | 926 | Male | TC | Per unit | 0.95 | 0.69 | 1.31 |
| 16322951 | Sakuta | 2005 | NA | cross-sectional study | Japan | Asia | 39 | 926 | Male | TG | Per unit | 0.99 | 0.72 | 1.36 |
| 15775677 | Volzke | 2005 | NA | cross-sectional study | Germany | Europe | 305 | 1747 | Male | LDL-C | Per unit | 0.88 | 0.77 | 0.99 |
| 15775677 | Volzke | 2005 | NA | cross-sectional study | Germany | Europe | 586 | 1564 | Female | LDL-C | Per unit | 0.85 | 0.76 | 0.94 |
| 15775677 | Volzke | 2005 | NA | cross-sectional study | Germany | Europe | 305 | 1747 | Male | HDL-C | Per unit | 0.66 | 0.44 | 1.00 |
| 15775677 | Volzke | 2005 | NA | cross-sectional study | Germany | Europe | 586 | 1564 | Female | HDL-C | Per unit | 0.76 | 0.58 | 0.99 |
| 11880221 | Boland | 2002 | 1987 - 1996 | cohort study | USA | America | 179 | 5660 | Male | TC | High vs Low | 0.91 | 0.60 | 1.40 |
| 11880221 | Boland | 2002 | 1987 - 1996 | cohort study | USA | America | 370 | 6564 | Female | TC | High vs Low | 1.07 | 0.80 | 1.50 |
| 11880221 | Boland | 2002 | 1987 - 1996 | cohort study | USA | America | 179 | 5660 | Male | TG | High vs Low | 1.65 | 1.00 | 2.70 |
| 11880221 | Boland | 2002 | 1987 - 1996 | cohort study | USA | America | 370 | 6564 | Female | TG | High vs Low | 2.57 | 1.70 | 3.90 |
| 11880221 | Boland | 2002 | 1987 - 1996 | cohort study | USA | America | 370 | 6564 | Female | LDL-C | High vs Low | 0.99 | 0.70 | 1.40 |
| 11880221 | Boland | 2002 | 1987 - 1996 | cohort study | USA | America | 179 | 5660 | Male | LDL-C | High vs Low | 0.85 | 0.50 | 1.40 |
| 11880221 | Boland | 2002 | 1987 - 1996 | cohort study | USA | America | 179 | 5660 | Male | HDL-C | High vs Low | 0.42 | 0.30 | 0.70 |
| 11880221 | Boland | 2002 | 1987 - 1996 | cohort study | USA | America | 370 | 6564 | Female | HDL-C | High vs Low | 0.64 | 0.50 | 0.90 |
| 11258564 | Brasca | 2000 | NA | cross-sectional study | Argentina | America | 169 | 539 | Female | TC | High vs Low | 0.80 | 0.50 | 1.20 |
| 11258564 | Brasca | 2000 | NA | cross-sectional study | Argentina | America | 72 | 393 | Male | TC | High vs Low | 1.00 | 0.50 | 1.90 |
| 11258564 | Brasca | 2000 | NA | cross-sectional study | Argentina | America | 72 | 393 | Male | TG | High vs Low | 0.80 | 0.40 | 1.80 |
| 11258564 | Brasca | 2000 | NA | cross-sectional study | Argentina | America | 169 | 539 | Female | TG | High vs Low | 1.90 | 1.00 | 3.60 |
| 11258564 | Brasca | 2000 | NA | cross-sectional study | Argentina | America | 72 | 393 | Male | LDL-C | High vs Low | 0.90 | 0.50 | 1.70 |
| 11258564 | Brasca | 2000 | NA | cross-sectional study | Argentina | America | 169 | 539 | Female | LDL-C | High vs Low | 0.80 | 0.50 | 1.20 |
| 11258564 | Brasca | 2000 | NA | cross-sectional study | Argentina | America | 72 | 393 | Male | HDL-C | High vs Low | 0.60 | 0.20 | 1.70 |
| 11258564 | Brasca | 2000 | NA | cross-sectional study | Argentina | America | 169 | 539 | Female | HDL-C | High vs Low | 0.90 | 0.50 | 1.50 |
| 10861277 | Misciagna | 2000 | May 1985 - June 1993 | case-control study | Italy | Europe | 84 | 271 | Both | TC | High vs Low | 0.83 | 0.37 | 1.88 |
| 10861277 | Misciagna | 2000 | May 1985 - June 1993 | case-control study | Italy | Europe | 84 | 271 | Both | TG | High vs Low | 2.94 | 1.17 | 7.36 |
| 10861277 | Misciagna | 2000 | May 1985 - June 1993 | case-control study | Italy | Europe | 84 | 271 | Both | HDL-C | High vs Low | 0.66 | 0.29 | 1.47 |
| 10861277 | Misciagna | 2000 | May 1985 - June 1993 | cross-sectional study | Italy | Europe | 84 | 271 | Both | TC | Per unit | 0.60 | 0.39 | 0.93 |
| 10861277 | Misciagna | 2000 | May 1985 - June 1993 | case-control study | Italy | Europe | 84 | 271 | Both | TG | Per unit | 1.72 | 0.97 | 3.05 |
| 9328297 | Attili | 1997 | December 1984 - April 1987 | cohort study | Italy | Europe | 1511 | 14399 | Male | TC | High vs Low | 0.66 | 0.57 | 0.78 |
| 9328297 | Attili | 1997 | December 1984 - April 1987 | cohort study | Italy | Europe | 2584 | 11090 | Female | TC | High vs Low | 0.77 | 0.68 | 0.88 |
| 9328297 | Attili | 1997 | December 1984 - April 1987 | cohort study | Italy | Europe | 1511 | 14399 | Male | TG | High vs Low | 0.94 | 0.80 | 1.09 |
| 9328297 | Attili | 1997 | December 1984 - April 1987 | cohort study | Italy | Europe | 2584 | 11090 | Female | TG | High vs Low | 1.31 | 1.15 | 1.49 |
| 9328297 | Attili | 1997 | December 1984 - April 1987 | cohort study | Italy | Europe | 2584 | 11090 | Female | HDL-C | High vs Low | 0.70 | 0.62 | 0.79 |
| 9328297 | Attili | 1997 | December 1984 - April 1987 | cohort study | Italy | Europe | 1511 | 14399 | Male | HDL-C | High vs Low | 0.73 | 0.63 | 0.85 |
| 8696071 | Villalpando | 1997 | NA | cross-sectional study | Mexico | America | 19 | 920 | Male | TC | High vs Low | 0.41 | 0.05 | 1.76 |
| 8696071 | Villalpando | 1997 | NA | cross-sectional study | Mexico | America | 124 | 1211 | Female | TC | High vs Low | 1.27 | 0.81 | 1.99 |
| 8696071 | Villalpando | 1997 | NA | cross-sectional study | Mexico | America | 19 | 920 | Male | TG | High vs Low | 1.01 | 0.35 | 3.28 |
| 8696071 | Villalpando | 1997 | NA | cross-sectional study | Mexico | America | 124 | 1211 | Female | TG | High vs Low | 1.57 | 1.05 | 2.36 |
| 7921309 | Shinchi | 1993 | October 1986 - December 1990 | case-control study | Japan | Asia | 61 | 2494 | Male | TC | High vs Low | 0.40 | 0.20 | 0.90 |
| 7921309 | Shinchi | 1993 | October 1986 - December 1990 | case-control study | Japan | Asia | 61 | 2494 | Male | TG | High vs Low | 1.20 | 0.50 | 2.60 |
| 7921309 | Shinchi | 1993 | October 1986 - December 1990 | case-control study | Japan | Asia | 61 | 2494 | Male | LDL-C | High vs Low | 0.50 | 0.30 | 1.20 |
| 7921309 | Shinchi | 1993 | October 1986 - December 1990 | case-control study | Japan | Asia | 61 | 2494 | Male | HDL-C | High vs Low | 1.00 | 0.40 | 2.30 |
| 7813691 | Loria | 1994 | November 1985 - April 1986 | cross-sectional study | Italy | Europe | 61 | 1804 | Both | TC | High vs Low | 1.14 | 0.78 | 1.66 |
| 7813691 | Loria | 1994 | November 1985 - April 1986 | cross-sectional study | Italy | Europe | 61 | 1804 | Both | TG | High vs Low | 1.03 | 0.65 | 1.63 |
| 7813691 | Loria | 1994 | November 1985 - April 1986 | cross-sectional study | Italy | Europe | 61 | 1804 | Both | HDL-C | High vs Low | 0.91 | 0.60 | 1.39 |
| 7231462 | Petitti | 1981 | NA | cross-sectional study | USA | America | 65 | 803 | Female | LDL-C | Per unit | 1.00 | 0.90 | 1.10 |
| 7231462 | Petitti | 1981 | NA | cross-sectional study | USA | America | 65 | 803 | Female | HDL-C | Per unit | 0.80 | 0.60 | 1.00 |
| 6432171 | Scragg | 1984 | December 1978 - September 1980 | case-control study | Australia | Oceania | 46 | 102 | Male | TC | Per unit | 0.64 | 0.41 | 0.99 |
| 6432171 | Scragg | 1984 | December 1978 - September 1980 | case-control study | Australia | Oceania | 127 | 182 | Female | TC | Per unit | 0.79 | 0.61 | 1.03 |
| 6432171 | Scragg | 1984 | December 1978 - September 1980 | case-control study | Australia | Oceania | 124 | 175 | Female | TG | Per unit | 2.94 | 1.38 | 6.25 |
| 6432171 | Scragg | 1984 | December 1978 - September 1980 | case-control study | Australia | Oceania | 44 | 99 | Male | TG | Per unit | 1.48 | 1.00 | 2.18 |
| 3391520 | GREPCO | 1988 | NA | cross-sectional study | Italy | Europe | 65 | 1137 | Male | TG | Per unit | 1.01 | 1.00 | 1.03 |
| 3391520 | GREPCO | 1988 | NA | cross-sectional study | Italy | Europe | 66 | 979 | Female | TG | Per unit | 1.01 | 1.00 | 1.01 |
| 3046339 | Nomura | 1988 | May 1984 - December 1984 | cross-sectional study | Japan | Asia | 82 | 1760 | Both | TC | High vs Low | 1.60 | 0.80 | 3.20 |
| 3046339 | Nomura | 1988 | May 1984 - December 1984 | cross-sectional study | Japan | Asia | 82 | 1760 | Both | TG | High vs Low | 0.60 | 0.30 | 1.20 |
| 2595254 | Jorgensen | 1989 | November 1982 - February 1984 | cross-sectional study | Denmark | Europe | 280 | 3128 | Both | TC | Per unit | 0.87 | 0.77 | 0.99 |
| 2595254 | Jorgensen | 1989 | November 1982 - February 1984 | cross-sectional study | Denmark | Europe | 280 | 3128 | Both | TG | Per unit | 1.09 | 0.97 | 1.22 |
| 2595254 | Jorgensen | 1989 | November 1982 - February 1984 | cross-sectional study | Denmark | Europe | 280 | 3128 | Both | LDL-C | Per unit | 0.88 | 0.77 | 1.00 |
| 2595254 | Jorgensen | 1989 | November 1982 - February 1984 | cross-sectional study | Denmark | Europe | 280 | 3128 | Both | HDL-C | Per unit | 0.72 | 0.50 | 1.04 |
| 2379787 | Thijs | 1990 | 1983 - 1985 | case-control study | Netherland | Europe | 250 | 526 | Both | TC | Per unit | 0.71 | 0.61 | 0.83 |
| 2379787 | Thijs | 1990 | 1983 - 1985 | case-control study | Netherland | Europe | 250 | 526 | Both | TG | Per unit | 3.77 | 2.21 | 6.44 |
| 2379787 | Thijs | 1990 | 1983 - 1985 | case-control study | Netherland | Europe | 250 | 526 | Both | HDL-C | Per unit | 0.14 | 0.07 | 0.28 |
| 2321626 | Sichieri | 1990 | 1971 - 1984 | cohort study | USA | America | 368 | 10551 | Both | TC | High vs Low | 1.12 | 1.02 | 1.22 |
| 2181870 | Maurer | 1990 | 1982 - 1984 | cross-sectional study | USA | America | 253 | 1072 | Female | TC | Per unit | 0.80 | 0.70 | 0.90 |
| 2181870 | Maurer | 1990 | 1982 - 1984 | cross-sectional study | USA | America | 53 | 915 | Male | TC | Per unit | 1.00 | 0.70 | 1.30 |
| 2181870 | Maurer | 1990 | 1982 - 1984 | cross-sectional study | USA | America | 53 | 915 | Male | HDL-C | Per unit | 0.80 | 0.60 | 1.00 |
| 2181870 | Maurer | 1990 | 1982 - 1984 | cross-sectional study | USA | America | 253 | 1072 | Female | HDL-C | Per unit | 1.00 | 0.90 | 1.20 |
| 1853863 | Mohr | 1991 | 1984 - 1987 | cross-sectional study | USA | America | 216 | 1087 | Female | TG | Per unit | 5.29 | 4.45 | 6.12 |
| 1853863 | Mohr | 1991 | 1984 - 1987 | cross-sectional study | USA | America | 216 | 1087 | Female | LDL-C | Per unit | 0.99 | 0.99 | 1.00 |
| 1853863 | Mohr | 1991 | 1984 - 1987 | cross-sectional study | USA | America | 216 | 1087 | Female | HDL-C | Per unit | 1.00 | 0.98 | 1.01 |
| 1563324 | Kato | 1992 | 1900 - 1919 | cohort study | USA | America | 471 | 7381 | Both | TC | High vs Low | 0.90 | 0.70 | 1.20 |
| 1563324 | Kato | 1992 | 1900 - 1919 | cohort study | USA | America | 471 | 7381 | Both | TG | High vs Low | 1.40 | 1.10 | 1.90 |

TC: total cholesterol, TG: triglycerides, LDL: low density lipoprotein cholesterol, HDL: high density lipoprotein cholesterol, NA: not available

**Appendix Table 7.** Subgroup analysis for relationships between blood lipid profiles, fasting glucose and gallstone disease in meta-analysis.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Standardized Mean Difference** | | | | **Odd Ratio (High vs Low)** | | | | **Odd Ratio (Per Unit)** | | | |
|  | **Datasets** | **SMD (95%CI)** | **p** | **І2** | **Datasets** | **OR (95%CI)** | **p** | **І2** | **Datasets** | **OR (95%CI)\*** | **p** | **І2** |
| **Total cholesterol** | 81 | 0.032 (-0.017, 0.080) | 0.199 | 91.3% | 33 | 0.95 (0.872, 1.035) | 0.14 | 74.6% | 23 | 0.992 (0.981, 1.004) | 0.177 | 84.5% |
| **Study\_design** |  |  |  |  |  |  |  |  |  |  |  |  |
| cross-sectional study | **47** | **0.068 (0.018, 0.118)** | **0.007** | **88.6%** | 21 | 0.98 (0.881, 1.09) | 0.551 | 64.9% | 16 | 0.992 (0.967, 1.018) | 0.071 | 83.6% |
| case-control study | 32 | 0.012 (-0.133, 0.157) | 0.874 | 92.0% | 3 | 0.69 (0.441, 1.079) | 0.188 | 31.7% | 7 | 0.992 (0.981, 1.004) | 0.564 | 88.1% |
| cohort study | 1 | 0.228 (-0.185, 0.640) | 0.279 | NA | 9 | 0.944 (0.777, 1.147) | 0.558 | 85.1% |  |  |  |  |
| **Geographic background** | | | | | | | | | | | | |
| Asia | **46** | **0.062 (0.031, 0.093)** | **<0.001** | **91.7%** | 19 | 0.980 (0.870, 1.104) | 0.743 | **72.8%** | 13 | 0.999 (0.984, 1.015) | 0.925 | 79.1% |
| Europe | 22 | -0.05 (-0.194, 0.094) | 0.495 | 84.9% | **4** | **0.780 (0.644, 0.945)** | **0.011** | **59.9%** | **6** | **0.979 (0.960, 1.000)** | **0.047** | **89.6%** |
| America | 13 | -0.096 (-0.327, 0.136) | 0.418 | 91.3% | 10 | 1.073 (0.994, 1.157) | 0.069 | 0.0% | 2 | 0.854 (0.7.00, 1.041) | 0.118 | 41.7% |
| **Gender** |  |  |  |  |  |  |  |  |  |  |  |  |
| Female | 18 | 0.094 (-0.059, 0.247) | 0.228 | 87.2% | 6 | 1.06 (0.807, 1.391) | 0.677 | 72.2% | **2** | **0.812 (0.733, 0.900)** | **<0.001** | **0.0%** |
| Male | 12 | -0.058 (-0.153, 0.038) | 0.236 | 52.6% | **7** | **0.68 (0.593, 0.779)** | **<0.001** | **0.0%** | **3** | **0.868 (0.756, 0.998)** | **0.047** | **2.2%** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Triglyceride** | **75** | **0.296 (0.246, 0.346)** | **<0.001** | **97.9%** | **23** | **1.225 (1.121, 1.338)** | **<0.001** | **75.4%** | **27** | **1.010 (1.005, 1.015)** | **<0.001** | **96.2%** |
| **Study\_design** |  |  |  |  |  |  |  |  |  |  |  |  |
| cross-sectional study | **48** | **0.244 (0.184, 0.304)** | **<0.001** | **98.4%** | **24** | **1.141 (1.04, 1.251)** | **0.005** | **68.3%** | **16** | **1.011 (1.004, 1.017)** | **0.002** | **97.6%** |
| case-control study | **32** | **0.464 (0.278, 0.649)** | **<0.001** | **95.0%** | **3** | **1.529 (1.075, 2.177)** | **0.018** | **18.2%** | 9 | 1.010 (0.996, 1.024) | 0.173 | 81.5% |
| cohort study | 1 | 0.043 (-0.369, 0.455) | 0.838 | NA | **7** | **1.565 (1.204, 2.033)** | **0.001** | **83.6%** | 2 | 1.076 (0.964, 1.200) | 0.19 | 0.0% |
| **Geographic background** | | | | | | | | | | | | |
| Asia | **47** | **0.123 (0.093, 0.154)** | **<0.001** | **91.4%** | **21** | **1.143 (1.04, 1.256)** | **0.006** | **67.1%** | **14** | **1.009 (1.002, 1.016)** | **0.011** | **81.0%** |
| Europe | **21** | **0.398 (0.091, 0.704)** | **0.011** | **95.2%** | 4 | 1.181 (0.889, 1.569) | 0.251 | 79.5% | 10 | 1.006 (0.999, 1.013) | 0.091 | 83.4% |
| America | **11** | **1.473 (0.336, 2.611)** | **0.011** | **99.6%** | **10** | **1.543 (1.185, 2.009)** | **0.001** | **65.9%** | **1** | **5.290 (4.511, 6.204)** | **<0.001** | **na** |
| **Gender** |  |  |  |  |  |  |  |  |  |  |  |  |
| Female | **16** | **1.295 (0.338, 2.251)** | **0.008** | **99.4%** | **8** | **1.621 (1.285, 2.045)** | **<0.001** | **74.6%** | 3 | 1.068 (0.893, 1.277) | 0.179 | 99.5% |
| Male | 11 | 0.159 (-0.057, 0.375) | 0.148 | 88.4% | 8 | 1.05 (0.898, 1.227) | 0.497 | 27.7% | 3 | 2.487 (0.659, 9.392) | 0.471 | 45.3% |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| **LDL-C** | **59** | **0.063 (0.032, 0.095)** | **<0.001** | **91.5%** | 20 | 0.972 (0.89, 1.063) | 0.539 | 75.5% | 18 | 0.998 (0.987, 1.008) | 0.641 | 82.2% |
| **Study\_design** |  |  |  |  |  |  |  |  |  |  |  |  |
| cross-sectional study | **37** | **0.084 (0.057, 0.111)** | **<0.001** | **85.7%** | 14 | 0.983 (0.89, 1.085) | 0.73 | 81.9% | 13 | 0.993 (0.981, 1.004) | 0.224 | 74.4% |
| case-control study | 21 | 0.098 (-0.098, 0.294) | 0.328 | 94.7% | 4 | 0.718 (0.404, 1.275) | 0.258 | 51.1% | 3 | 1.010 (0.973, 1.047) | 0.602 | 89.8% |
| cohort study |  |  |  |  | 2 | 1.002 (0.799, 1.255) | 0.988 | 0.0% | 1 | 1.590 (1.322, 1.913) | 0.768 | na |
| **Geographic background** | | | | | | | | | | | | |
| Asia | **36** | **0.045 (0.011, 0.079)** | **0.01** | **93.5%** | 14 | 0.978 (0.884, 1.082) | 0.665 | 82.6% | 11 | 1.008 (0.991, 1.025) | 0.376 | 73.9% |
| Europe | 11 | 0.081 (-0.012, 0.174) | 0.089 | 40.1% |  |  |  |  | 6 | 0.947 (0.829, 1.081) | 0.417 | 90.0% |
| America | 10 | 0.154 (-0.038, 0.346) | 0.117 | 83.5% | 6 | 0.950 (0.785, 1.149) | 0.597 | 0.0% | **2** | **0.990 (0.985, 0.995)** | **<0.001** | **0.0%** |
| **Gender** |  |  |  |  |  |  |  |  |  |  |  |  |
| Female | **11** | **0.141 (0.023, 0.259)** | **0.020** | **67.9%** | 3 | 0.966 (0.765, 1.219) | 0.594 | 0.0% | 4 | 0.963 0.893 1.039 | 0.332 | 63.8% |
| Male | 7 | -0.018 (-0.115, 0.079) | 0.719 | 42.1% | 5 | 0.893 (0.776, 1.026) | 0.409 | 0.0% | 2 | 0.968 0.784 1.197 | 0.766 | 70.6% |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| **HDL-C** | **76** | **-0.177 (-0.211, -0.143)** | **<0.001** | **94.5%** | **28** | **0.699 (0.647, 0.756)** | **<0.001** | **66.2%** | **26** | **0.967 (0.953, 0.982)** | **<0.001** | **80.6%** |
| **Study\_design** |  |  |  |  |  |  |  |  |  |  |  |  |
| cross-sectional study | **46** | **-0.116 (-0.143, -0.089)** | **<0.001** | 87.9% | **18** | **0.743 (0.682, 0.81)** | **<0.001** | **59.6%** | **18** | **0.976 (0.960, 0.991)** | **0.002** | **76.3%** |
| case-control study | **28** | **-0.480 (-0.711, -0.249)** | **<0.001** | 96.6% | **3** | **0.58 (0.361, 0.935)** | **0.025** | **38.0%** | 6 | 0.960 (0.918, 1.003) | 0.067 | 89.0% |
| cohort study | 1 | 0.092 (-0.321, 0.504) | 0.004 |  | **6** | **0.612 (0.511, 0.732)** | **<0.001** | **62.9%** | 2 | 0.868 (0.615, 1.225) | 0.42 | 0.0% |
| **Geographic background** | | | | | | | | | | | | |
| Asia | **42** | **-0.165 (-0.197, -0.134)** | **<0.001** | **92.5%** | **17** | **0.720 (0.654, 0.792)** | **<0.001** | **68.6%** | **12** | **0.959 (0.94, 0.979)** | **<0.001** | **85.0%** |
| Europe | **19** | **-0.553 (-0.925, -0.181)** | **0.004** | **96.9%** | **4** | **0.719 (0.657, 0.788)** | **<0.001** | **0.0%** | 10 | 0.961 (0.923, 1.001) | 0.054 | 80.9% |
| America | 12 | -0.066 (-0.211, 0.079) | 0.374 | 81.4% | **9** | **0.574 (0.455, 0.724)** | **<0.001** | **43.6%** | 4 | 0.95 (0.861, 1.048) | 0.304 | 48.5% |
| **Gender** |  |  |  |  |  |  |  |  |  |  |  |  |
| Female | 15 | -0.234 (-0.54, 0.072) | 0.134 | 96.5% | **7** | **0.714 (0.619, 0.824)** | **<0.001** | **41.4%** | 5 | 0.899 (0.796, 1.016) | 0.252 | 65.4% |
| Male | **11** | **-0.341 (-0.612, -0.071)** | **0.013** | **94.9%** | **5** | **0.543 (0.349, 0.844)** | **0.007** | **69.2%** | **3** | **0.825 (0.731, 0.932)** | **0.012** | **0.0%** |

Bold means *p* < 0.05, LDL: low density lipoprotein cholesterol, HDL:high density lipoprotein cholesterol.