Supplementary materials: detailed results

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Supplementary materials: detailed results

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Descriptive statistics

 $\begin{tabular}{ll} Table 1 \\ Descriptive \ statistics \\ \end{tabular}$

| strength | Z | sampleSize | Ą | samples | studies | CS short | CS long | CS other | Wellbeing | MentalHealt | Climical |
|------------------------|--------|-------------|------|---------|---------|-----------|-----------|----------|------------|-------------|----------|
| Appreciation_of_beauty | 193916 | [32; 56998] | 206 | 112 | 92 | 97 (43) | 109 (71) | 0 (0) | 169 (0) | 37 (0) | 12 (0) |
| Bravery | 194235 | [26; 56998] | 201 | 113 | 93 | 97 (43) | 102 (70) | 2 (2) | 165(0) | 36 (0) | 8 (0) |
| Creativity | 196142 | [32; 56998] | 207 | 115 | 95 | 104 (46) | 103 (71) | 0 (0) | 167 (0) | 40 (0) | 10 (0) |
| Curiosity | 196450 | [32; 56998] | 211 | 115 | 96 | 104 (46) | 107 (71) | 0 (0) | 174 (0) | 37 (0) | 8 (0) |
| Fairness | 193138 | [32; 56998] | 199 | 110 | 91 | 97 (43) | 102 (69) | 0 (0) | 165(0) | 34(0) | 8 (0) |
| Forgiveness | 196010 | [32; 56998] | 216 | 119 | 98 | 102 (45) | 114 (76) | 0 (0) | 174 (0) | 42 (0) | 15 (0) |
| Gratitude | 212430 | [26; 56998] | 231 | 125 | 104 | 110 (49) | 119 (76) | 2(2) | 189 (0) | 42 (0) | 13 (0) |
| Honesty | 194199 | [32; 56998] | 199 | 111 | 92 | 97 (43) | 102 (70) | 0 (0) | 163 (0) | 36 (0) | 8 (0) |
| Норе | 238842 | [32; 56998] | 224 | 121 | 101 | 108 (47) | 116 (76) | 0 (0) | 183 (0) | 41 (0) | 14 (0) |
| Humility | 237322 | [32; 56998] | 204 | 112 | 93 | 101 (44) | 103 (70) | 0 (0) | 169 (0) | 35~(0) | 12 (0) |
| Humor | 238185 | [32; 56998] | 221 | 118 | 97 | 101 (44) | 120 (76) | 0 (0) | 184 (0) | 37 (0) | 17 (0) |
| Judgment | 195537 | [32; 56998] | 201 | 112 | 93 | 97 (43) | 104 (71) | 0 (0) | 163 (0) | 38 (0) | 10 (0) |
| Kindness | 197301 | [32; 56998] | 209 | 117 | 98 | 103 (46) | 104 (71) | 2(2) | 173 (0) | 36 (0) | 12 (0) |
| Leadership | 194570 | [32; 56998] | 202 | 111 | 92 | 102 (45) | 100 (68) | 0 (0) | 167 (0) | 35 (0) | 12 (0) |
| Love_of_learning | 196136 | [26; 56998] | 208 | 115 | 95 | 99 (44) | 107 (71) | 2(2) | 171 (0) | 37(0) | 8 (0) |
| Love | 194942 | [26; 56998] | 212 | 116 | 96 | 107 (46) | 103 (70) | 2(2) | 177 (0) | 35 (0) | 14 (0) |
| Perseverance | 194361 | [32; 56998] | 203 | 112 | 93 | 98 (44) | 105 (70) | 0 (0) | 166 (0) | 37 (0) | 11 (0) |
| Perspective | 195402 | [32; 56998] | 202 | 112 | 93 | 97 (43) | 105 (71) | 0 (0) | 165 (0) | 37 (0) | 11 (0) |
| Prudence | 193610 | [32; 56998] | 197 | 109 | 90 | 97 (43) | 100 (68) | 0 (0) | 162 (0) | 35 (0) | 8 (0) |
| Self_regulation | 193949 | [26; 56998] | 205 | 113 | 93 | 97 (43) | 106 (70) | 2 (2) | 168 (0) | 37 (0) | 11 (0) |
| Social_intelligence | 196471 | [32; 56998] | 213 | 116 | 96 | 106 (47) | 107 (71) | 0 (0) | 176 (0) | 37 (0) | 16 (0) |
| Spirituality | 194116 | [32; 56998] | 208 | 113 | 93 | 97 (43) | 111 (72) | 0 (0) | 170 (0) | 38 (0) | 14 (0) |
| Teamwork | 194873 | [32; 56998] | 203 | 112 | 93 | 102 (45) | 101 (69) | 0 (0) | 168 (0) | 35 (0) | 12 (0) |
| Zest | 204403 | [32; 56998] | 213 | 116 | 97 | 103 (45) | 109 (72) | 1 (1) | 176 (0) | 37 (0) | 15 (0) |
| FullSample | 275007 | [26; 56998] | 4995 | 154 | 130 | 2423 (56) | 2559 (95) | 13 (5) | 4104 (135) | 891 (42) | 279 (13) |

Detailed number of effects for specific outcomes

 $\begin{tabular}{ll} Table 2 \\ {\it Effects for each specific outcome} \end{tabular}$

| | Anxiety | Depression | Domain satisfaction | General mental health | Happiness | Life satisfaction | Negative affect | Positive affect | Psychological well-being | Stress | Subjective well-being |
|------------------------|---------|------------|---------------------|-----------------------|-----------|-------------------|-----------------|-----------------|--------------------------|--------|-----------------------|
| Appreciation of beauty | 7 | 20 | 17 | 5 | 11 | 60 | 21 | 23 | 28 | 5 | 4 |
| Bravery | 7 | 18 | 17 | 5 | 11 | 58 | 19 | 21 | 30 | 5 | 4 |
| Creativity | 8 | 19 | 20 | 5 | 11 | 60 | 19 | 21 | 27 | 8 | 4 |
| Curiosity | 7 | 18 | 17 | 5 | 11 | 61 | 21 | 23 | 31 | 7 | 4 |
| Fairness | 7 | 17 | 17 | 5 | 11 | 60 | 19 | 20 | 29 | 5 | 4 |
| Forgiveness | 7 | 23 | 18 | 6 | 12 | 61 | 21 | 23 | 30 | 5 | 4 |
| Gratitude | 8 | 23 | 17 | 6 | 12 | 64 | 22 | 25 | 39 | 5 | 4 |
| Honesty | 7 | 18 | 17 | 5 | 11 | 58 | 19 | 21 | 28 | 5 | 4 |
| Норе | 8 | 22 | 17 | 5 | 12 | 63 | 22 | 25 | 34 | 5 | 4 |
| Humility | 7 | 18 | 17 | 5 | 11 | 60 | 21 | 23 | 28 | 5 | 4 |
| Humor | 7 | 20 | 17 | 5 | 11 | 65 | 24 | 26 | 32 | 5 | 4 |
| Judgment | 7 | 19 | 17 | 5 | 12 | 58 | 19 | 21 | 27 | 7 | 4 |
| Kindness | 7 | 18 | 17 | 5 | 11 | 61 | 20 | 22 | 32 | 5 | 4 |
| Leadership | 7 | 18 | 17 | 5 | 11 | 60 | 20 | 22 | 28 | 5 | 4 |
| Love of learning | 7 | 18 | 17 | 5 | 11 | 59 | 20 | 22 | 32 | 7 | 4 |
| Love | 7 | 18 | 17 | 5 | 11 | 62 | 21 | 24 | 33 | 5 | 4 |
| Perseverance | 8 | 19 | 17 | 5 | 11 | 60 | 20 | 22 | 27 | 5 | 4 |
| Perspective | 7 | 18 | 17 | 5 | 11 | 59 | 20 | 22 | 27 | 7 | 4 |
| Prudence | 7 | 18 | 17 | 5 | 11 | 58 | 19 | 21 | 27 | 5 | 4 |
| Self regulation | 7 | 19 | 17 | 5 | 11 | 59 | 20 | 22 | 30 | 5 | 4 |
| Social intelligence | 7 | 19 | 19 | 6 | 12 | 63 | 21 | 23 | 29 | 5 | 4 |
| Spirituality | 7 | 21 | 17 | 5 | 12 | 60 | 21 | 23 | 28 | 5 | 4 |
| Teamwork | 7 | 18 | 18 | 5 | 11 | 60 | 20 | 22 | 28 | 5 | 4 |
| Zest | 7 | 20 | 18 | 5 | 12 | 63 | 21 | 24 | 29 | 5 | 4 |

*

Detailed results healthy functioning

 $\label{thm:constraints} \begin{tabular}{ll} Table 3 \\ Meta-analytical \ associations \ between \ character \ strengths \ and \ mental \ health \ and \ well-being \end{tabular}$

| Strength | N | k | r | CI | se | tau2 | Q |
|------------------------|-------------|-----|--------|-------------------|-------|-------|-------|
| Appreciation of beauty | 297,966 | 206 | 0.134* | [0.115; 0.152] | 0.010 | 0.008 | 2258* |
| Bravery | 297,163 | 201 | 0.210* | [0.189;0.231] | 0.011 | 0.012 | 3267* |
| Creativity | 300,171 | 207 | 0.173* | [0.154;0.191] | 0.010 | 0.009 | 3809* |
| Curiosity | 302,278 | 211 | 0.308* | [0.285;0.330] | 0.013 | 0.016 | 4814* |
| Fairness | 296,350 | 199 | 0.171* | [0.153; 0.188] | 0.009 | 0.007 | 1355* |
| Forgiveness | 302,471 | 216 | 0.205* | [0.190; 0.220] | 0.008 | 0.006 | 1183* |
| Gratitude | 321,558 | 231 | 0.353* | $[0.333;\ 0.372]$ | 0.011 | 0.014 | 5678* |
| Honesty | 297,101 | 199 | 0.216* | [0.197;0.235] | 0.010 | 0.010 | 2305* |
| Норе | 344,632 | 224 | 0.456* | [0.429;0.482] | 0.017 | 0.032 | 7841* |
| Humility | 342,132 | 204 | 0.056* | $[0.041;\ 0.072]$ | 0.008 | 0.005 | 1820* |
| Humor | 346,424 | 221 | 0.231* | [0.213; 0.250] | 0.010 | 0.010 | 2940* |
| Judgment | 298,639 | 201 | 0.166* | [0.148;0.184] | 0.010 | 0.008 | 2363* |
| Kindness | 302,253 | 209 | 0.197* | [0.176;0.218] | 0.011 | 0.013 | 2472* |
| Leadership | 299,212 | 202 | 0.225* | [0.207;0.242] | 0.009 | 0.008 | 2409* |
| Love of learning | 301,375 | 208 | 0.195* | [0.175;0.216] | 0.011 | 0.011 | 3443* |
| Love | 300,315 | 212 | 0.348* | [0.326; 0.370] | 0.013 | 0.016 | 4610* |
| Perseverance | 297,893 | 203 | 0.291* | [0.273;0.309] | 0.010 | 0.009 | 3441* |
| Perspective | 298,434 | 202 | 0.243* | [0.223;0.264] | 0.011 | 0.012 | 3168* |
| Prudence | $296,\!512$ | 197 | 0.156* | [0.137;0.175] | 0.010 | 0.008 | 2126* |
| Self regulation | 297,483 | 205 | 0.242* | [0.225;0.260] | 0.009 | 0.008 | 3454* |
| Social intelligence | 305,999 | 213 | 0.262* | [0.242;0.281] | 0.011 | 0.011 | 2562* |
| Spirituality | 298,366 | 208 | 0.192* | [0.174;0.211] | 0.010 | 0.008 | 5252* |
| Teamwork | 299,515 | 203 | 0.238* | [0.220;0.256] | 0.010 | 0.008 | 1799* |
| Zest | 318,143 | 213 | 0.447* | [0.423;0.471] | 0.015 | 0.025 | 6003* |

^{*} See the shiny app for additional info

Detailed results on mental health vs well-being moderator analysis

Table 4

Moderator analysis testing for differences between mental health (MH) and well-being (WB) outcomes

| Strength | r MH | N MH | k MH | r WB | N WB | k WB | delta r | delta CI | se | z | tau2 | Q | QM |
|------------------------|--------------------------|--------|------|--------------------------|---------|------|---------|---------------------|-------|--------|-------|-----------|----------|
| Appreciation of beauty | 0.049 [0.024; 0.075] | 30,000 | 37 | 0.152 [0.133; 0.171] | 267,966 | 169 | 0.104* | [0.083; 0.124] | 0.011 | 9.760 | 0.007 | 1876.741* | 95.250* |
| Bravery | $0.140\ [0.112;\ 0.168]$ | 29,977 | 36 | $0.220\ [0.198;\ 0.242]$ | 267,186 | 165 | 0.082* | [0.061; 0.104] | 0.011 | 7.514 | 0.011 | 2781.526* | 56.466* |
| Creativity | $0.092\ [0.066;\ 0.118]$ | 32,425 | 40 | $0.195\ [0.176;\ 0.214]$ | 267,746 | 167 | 0.105* | $[\ 0.084;\ 0.126]$ | 0.011 | 9.835 | 0.008 | 3516.879* | 96.736* |
| Curiosity | $0.215\ [0.185;\ 0.245]$ | 31,432 | 37 | $0.326\ [0.303;\ 0.349]$ | 270,846 | 174 | 0.120* | [0.098; 0.141] | 0.011 | 10.846 | 0.015 | 4103.610* | 117.633* |
| Fairness | $0.115\ [0.092;\ 0.137]$ | 28,645 | 34 | $0.176\ [0.163;\ 0.190]$ | 267,705 | 165 | 0.063* | $[\ 0.042;\ 0.083]$ | 0.011 | 5.956 | 0.006 | 1149.414* | 35.469* |
| Forgiveness | 0.175 [0.152; 0.196] | 31,394 | 42 | 0.211 [0.196; 0.227] | 271,077 | 174 | 0.038* | [0.018; 0.058] | 0.010 | 3.736 | 0.005 | 1109.798* | 13.961* |
| Gratitude | $0.251\ [0.223;\ 0.278]$ | 31,727 | 42 | 0.370 [0.350; 0.390] | 289,831 | 189 | 0.132* | [0.111; 0.152] | 0.011 | 12.614 | 0.013 | 5177.542* | 159.119* |
| Honesty | $0.164\ [0.137;\ 0.191]$ | 29,977 | 36 | $0.226\ [0.205;\ 0.247]$ | 267,124 | 163 | 0.064* | [0.043; 0.085] | 0.011 | 5.874 | 0.009 | 2148.538* | 34.506* |
| Hope | $0.396\ [0.362;\ 0.428]$ | 31,472 | 41 | $0.465\ [0.437;\ 0.492]$ | 313,160 | 183 | 0.085* | $[\ 0.063;\ 0.107]$ | 0.011 | 7.672 | 0.031 | 7128.935* | 58.854* |
| Humility | $0.045\ [0.021;\ 0.069]$ | 29,705 | 35 | $0.060\ [0.044;\ 0.077]$ | 312,427 | 169 | 0.015 | [-0.006; 0.036] | 0.011 | 1.423 | 0.005 | 1779.295* | 2.025 |
| Humor | 0.169 [0.143; 0.195] | 30,000 | 37 | 0.241 [0.222; 0.260] | 316,424 | 184 | 0.075* | [0.054; 0.096] | 0.011 | 6.932 | 0.009 | 2610.984* | 48.054* |
| Judgment | $0.134\ [0.108;\ 0.161]$ | 31,632 | 38 | $0.177\ [0.157;\ 0.197]$ | 267,007 | 163 | 0.043* | $[\ 0.022;\ 0.064]$ | 0.011 | 4.044 | 0.008 | 2251.728* | 16.354* |
| Kindness | $0.113\ [0.085;\ 0.140]$ | 29,977 | 36 | $0.213\ [0.192;\ 0.233]$ | 272,276 | 173 | 0.102* | $[\ 0.081;\ 0.123]$ | 0.011 | 9.362 | 0.010 | 1855.444* | 87.656* |
| Leadership | $0.155\ [0.131;\ 0.179]$ | 29,705 | 35 | $0.237\ [0.220;\ 0.254]$ | 269,507 | 167 | 0.085* | $[\ 0.064;\ 0.106]$ | 0.011 | 7.927 | 0.006 | 2005.695* | 62.843* |
| Love of learning | $0.158\ [0.130;\ 0.185]$ | 31,432 | 37 | $0.205\ [0.183;\ 0.226]$ | 269,943 | 171 | 0.049* | $[\ 0.028;\ 0.070]$ | 0.011 | 4.476 | 0.011 | 3355.213* | 20.031* |
| Love | 0.275 [0.245; 0.304] | 29,705 | 35 | 0.358 [0.335; 0.381] | 270,610 | 177 | 0.092* | [0.070; 0.114] | 0.011 | 8.263 | 0.015 | 4400.771* | 68.281* |
| Perseverance | $0.236\ [0.210;\ 0.263]$ | 30,705 | 37 | $0.302\ [0.282;\ 0.322]$ | 267,188 | 166 | 0.071* | $[\ 0.049;\ 0.092]$ | 0.011 | 6.480 | 0.010 | 3270.691* | 41.995* |
| Perspective | $0.165\ [0.138;\ 0.191]$ | 31,432 | 37 | $0.254\ [0.234;\ 0.274]$ | 267,002 | 165 | 0.093* | $[\ 0.072;\ 0.114]$ | 0.011 | 8.587 | 0.009 | 2652.845* | 73.729* |
| Prudence | $0.144\ [0.116;\ 0.171]$ | 29,705 | 35 | $0.157\ [0.135;\ 0.178]$ | 266,807 | 162 | 0.013 | [-0.008; 0.035] | 0.011 | 1.211 | 0.009 | 2125.283* | 1.467 |
| Self regulation | $0.232\ [0.207;\ 0.257]$ | 30,181 | 37 | $0.245\ [0.226;\ 0.264]$ | 267,302 | 168 | 0.013 | [-0.008; 0.034] | 0.011 | 1.232 | 0.008 | 3412.153* | 1.518 |
| Social intelligence | 0.192 [0.166; 0.219] | 31,312 | 37 | 0.275 [0.255; 0.295] | 274,687 | 176 | 0.087* | [0.067; 0.107] | 0.010 | 8.516 | 0.010 | 2230.926* | 72.529* |
| Spirituality | $0.116\ [0.090;\ 0.142]$ | 30,200 | 38 | $0.200\ [0.181;\ 0.220]$ | 268,166 | 170 | 0.086* | $[\ 0.065;\ 0.107]$ | 0.011 | 8.088 | 0.008 | 4855.399* | 65.422* |
| Teamwork | $0.186\ [0.161;\ 0.212]$ | 29,705 | 35 | $0.246\ [0.227;\ 0.264]$ | 269,810 | 168 | 0.062* | $[\ 0.041;\ 0.083]$ | 0.011 | 5.726 | 0.008 | 1574.225* | 32.782* |
| Zest | $0.363\ [0.330;\ 0.396]$ | 30,231 | 37 | $0.456\ [0.429;\ 0.482]$ | 287,912 | 176 | 0.111* | $[\ 0.089;\ 0.133]$ | 0.011 | 9.941 | 0.026 | 5762.106* | 98.822* |

^{*} QM indicates the Q test for the moderator analysis

Detailed results on short vs long VIA formats (WB)

Table 5 ${\it Moderator~analysis~testing~for~differences~between~short~and~long~VIA~formats~on~WB}$ outcomes

| Strength | r long | N | k | r short | N | k | delta r | delta CI | se | z | tau2 | Q | QM |
|------------------------|--------------------------|-------------|-----|---------------------------|-------------|----|---------|--------------------|-------|--------|-------|-----------|---------|
| Appreciation of beauty | 0.164 [0.142; 0.185] | 132,486 | 100 | $0.148\ [0.123;\ 0.173]$ | 135,480 | 69 | -0.016 | [-0.040; 0.008] | 0.012 | -1.307 | 0.007 | 1481.047* | 1.709 |
| Bravery | $0.237\ [0.214;\ 0.259]$ | 131,644 | 94 | $0.221\ [0.195;\ 0.247]$ | 135,480 | 69 | -0.016 | [-0.041; 0.009] | 0.013 | -1.260 | 0.009 | 2330.102* | 1.589 |
| Creativity | $0.201\ [0.177;\ 0.224]$ | 131,630 | 94 | $0.197\ [0.171;\ 0.223]$ | 136,116 | 73 | -0.004 | [-0.028; 0.021] | 0.012 | -0.297 | 0.009 | 2578.919* | 0.088 |
| Curiosity | $0.344\ [0.317;\ 0.372]$ | $133,\!907$ | 98 | $0.296\ [0.265;\ 0.326]$ | 136,939 | 76 | -0.054* | [-0.081; -0.027] | 0.014 | -3.920 | 0.017 | 3747.610* | 15.369* |
| Fairness | $0.188\ [0.168;\ 0.208]$ | 131,845 | 95 | $0.186\ [0.163;\ 0.209]$ | 135,860 | 70 | -0.002 | [-0.025;0.021] | 0.012 | -0.171 | 0.006 | 818.375* | 0.029 |
| Forgiveness | $0.215\ [0.196;\ 0.234]$ | 132,897 | 100 | $0.21\ [0.188;\ 0.232]$ | 138,180 | 74 | -0.005 | [-0.029; 0.018] | 0.012 | -0.433 | 0.006 | 920.616* | 0.188 |
| Gratitude | $0.364\ [0.34;\ 0.389]$ | $150,\!549$ | 108 | $0.38\ [0.354;\ 0.406]$ | 139,220 | 79 | 0.018 | $[-0.007;\ 0.044]$ | 0.013 | 1.415 | 0.015 | 4302.989* | 2.002 |
| Honesty | $0.243\ [0.222; 0.265]$ | 131,644 | 94 | $0.227\ [0.203;\ 0.252]$ | $135,\!480$ | 69 | -0.017 | [-0.041;0.007] | 0.012 | -1.374 | 0.007 | 1465.742* | 1.887 |
| Hope | $0.469\ [0.437;\ 0.501]$ | 175,967 | 103 | $0.48\; [0.446; 0.513]$ | 137,193 | 80 | 0.014 | $[-0.015;\ 0.042]$ | 0.015 | 0.934 | 0.035 | 6436.417* | 0.872 |
| Humility | $0.067\ [0.047;\ 0.088]$ | 174,627 | 96 | $0.06\ [0.036;\ 0.083]$ | 137,800 | 73 | -0.008 | [-0.032; 0.016] | 0.012 | -0.640 | 0.006 | 1163.076* | 0.409 |
| Humor | 0.273 [0.252; 0.294] | 178,624 | 111 | 0.203 [0.177; 0.227] | 137,800 | 73 | -0.075* | [-0.099; -0.051] | 0.012 | -6.088 | 0.008 | 1652.281* | 37.061* |
| Judgment | $0.193\ [0.169; 0.216]$ | $131,\!527$ | 94 | $0.164\ [0.139;\ 0.19]$ | $135,\!480$ | 69 | -0.029* | [-0.050; -0.008] | 0.011 | -2.687 | 0.009 | 1856.884* | 7.222* |
| Kindness | $0.224\ [0.201;\ 0.246]$ | $132,\!264$ | 96 | $0.204\ [0.179; 0.23]$ | $138,\!375$ | 75 | -0.020 | $[-0.045;\ 0.005]$ | 0.013 | -1.578 | 0.009 | 1437.624* | 2.489 |
| Leadership | $0.253\ [0.233;\ 0.273]$ | 131,327 | 93 | $0.222\ [0.199;\ 0.244]$ | 138,180 | 74 | -0.033* | [-0.056; -0.009] | 0.012 | -2.742 | 0.006 | 1645.168* | 7.517* |
| Love of learning | $0.225\ [0.199;\ 0.251]$ | 133,907 | 98 | $0.176\ [0.146;\ 0.205]$ | 135,974 | 71 | -0.052* | [-0.078; -0.025] | 0.013 | -3.856 | 0.012 | 2840.249* | 14.869* |
| Love | $0.361\ [0.334;\ 0.386]$ | 131,742 | 96 | $0.364\ [0.335;\ 0.391]$ | 138,806 | 79 | 0.003 | [-0.023; 0.030] | 0.014 | 0.252 | 0.015 | 3581.524* | 0.064 |
| Perseverance | $0.31\ [0.287;\ 0.333]$ | $131,\!522$ | 96 | $0.296\ [0.269;\ 0.322]$ | $135,\!666$ | 70 | -0.016 | $[-0.042;\ 0.009]$ | 0.013 | -1.247 | 0.010 | 2855.072* | 1.555 |
| Perspective | $0.287\ [0.265;\ 0.31]$ | $131,\!522$ | 96 | $0.228\ [0.202;\ 0.253]$ | $135,\!480$ | 69 | -0.064* | [-0.087; -0.040] | 0.012 | -5.260 | 0.009 | 2245.139* | 27.665* |
| Prudence | $0.168\ [0.144;\ 0.192]$ | 131,327 | 93 | $0.147\ [0.12;\ 0.174]$ | 135,480 | 69 | -0.021 | [-0.047; 0.004] | 0.013 | -1.657 | 0.009 | 1355.696* | 2.747 |
| Self regulation | $0.265\ [0.243;\ 0.286]$ | 131,760 | 97 | $0.221\ [0.195;\ 0.246]$ | 135,480 | 69 | -0.047* | [-0.071; -0.022] | 0.013 | -3.739 | 0.008 | 2941.797* | 13.980* |
| Social intelligence | 0.288 [0.266; 0.31] | 136,065 | 98 | 0.279 [0.254; 0.303] | 138,622 | 78 | -0.010 | [-0.035; 0.015] | 0.013 | -0.791 | 0.009 | 1746.220* | 0.626 |
| Spirituality | $0.212\ [0.189;\ 0.235]$ | 132,686 | 101 | $0.178\ [0.151;\ 0.205]$ | 135,480 | 69 | -0.035* | [-0.060; -0.010] | 0.013 | -2.751 | 0.009 | 3826.707* | 7.569* |
| Teamwork | $0.265\ [0.244; 0.286]$ | 131,630 | 94 | $0.232\ [0.208;\ 0.256]$ | 138,180 | 74 | -0.036* | [-0.059; -0.012] | 0.012 | -2.966 | 0.007 | 1197.554* | 8.795* |
| Zest | 0.447 [0.414; 0.478] | 151,426 | 101 | $0.454 \ [0.42; \ 0.487]$ | 136,486 | 75 | 0.009 | [-0.019; 0.038] | 0.015 | 0.649 | 0.032 | 4874.354* | 0.422 |

 $^{^{\}ast}$ QM indicates the Q test for the moderator analysis

Detailed results on specific well-being outcomes

Table 6 ${\it Moderator~analysis~testing~for~differences~between~specific~WB~outcomes}$

| Strength | Domain satisfaction | Happyness | Life satisfaction | Negative affect | Positive affect | Psychological wellbeing | Subjective wellbeing | Overall effect | tau2 | Q | QM |
|------------------------|--------------------------|--------------------------|--------------------------|---------------------------------|--------------------------|----------------------------|---------------------------------|--------------------------|-------|------------------------|-------------|
| Appreciation of beauty | $0.126\ [0.090;\ 0.161]$ | $0.180\ [0.144;\ 0.215]$ | $0.155\ [0.133;\ 0.177]$ | 0.080 [0.053; 0.107] | $0.227\ [0.202;\ 0.253]$ | $0.154\ [0.127;\ 0.180]$ | $0.141\ [\ 0.060;\ 0.219]$ | $0.152\ [0.133;\ 0.171]$ | 0.007 | 1876.741(204)* | 95.250(1)* |
| Bravery | $0.157\ [0.120;\ 0.193]$ | $0.345\ [0.312;\ 0.378]$ | $0.212\ [0.189;\ 0.235]$ | $0.104\ [\ 0.076;\ 0.132]$ | $0.267\ [0.241;\ 0.293]$ | $0.297\ [0.271;\ 0.323]$ | $0.170\ [\ 0.089;\ 0.249]$ | $0.220\ [0.198; 0.242]$ | 0.008 | 2781.526(199)* | 56.466(1)* |
| Creativity | $0.138\ [0.102;\ 0.174]$ | $0.274\ [0.239;\ 0.309]$ | $0.189\ [0.165;\ 0.212]$ | $0.022\ [-0.007;\ 0.051]$ | $0.303\ [0.276; 0.328]$ | $0.253\ [0.226;\ 0.280]$ | $0.144\ [\ 0.061;\ 0.224]$ | $0.195\ [0.176; 0.214]$ | 0.008 | 3516.879(205)* | 96.736(1)* |
| Curiosity | $0.211\ [0.171;\ 0.250]$ | $0.466\ [0.433;\ 0.498]$ | $0.317\ [0.291;\ 0.342]$ | $0.120\ [\ 0.088;\ 0.152]$ | $0.400\ [0.373;\ 0.427]$ | $0.349\ [0.320;\ 0.377]$ | $0.299\ [\ 0.217;\ 0.376]$ | $0.326\ [0.303;\ 0.349]$ | 0.013 | $4103.610(209)^{\ast}$ | 117.633(1)* |
| Fairness | $0.192\ [0.157;\ 0.226]$ | $0.257\ [0.223;\ 0.291]$ | $0.174\ [0.152;\ 0.196]$ | $0.153\ [\ 0.126;\ 0.180]$ | $0.193\ [0.167;\ 0.219]$ | $0.187\ [0.161;\ 0.213]$ | $0.157\ [\ 0.077;\ 0.235]$ | $0.176\ [0.163;\ 0.190]$ | 0.007 | $1149.414(197)^*$ | 35.469(1)* |
| Forgiveness | $0.206\ [0.172;\ 0.239]$ | $0.276\ [0.243;\ 0.308]$ | $0.212\ [0.191;\ 0.233]$ | $0.222\ [\ 0.197;\ 0.247]$ | $0.238\ [0.213;\ 0.262]$ | $0.169\ [0.143;\ 0.194]$ | $0.172\ [\ 0.093;\ 0.250]$ | $0.211\ [0.196;\ 0.227]$ | 0.006 | 1109.798(214)* | 13.961(1)* |
| Gratitude | $0.258\ [0.219;\ 0.297]$ | $0.448\ [0.415;\ 0.481]$ | $0.416\ [0.392;\ 0.439]$ | $0.189\ [\ 0.158;\ 0.219]$ | $0.371\ [0.344; 0.398]$ | $0.359 \ [0.331; \ 0.386]$ | $0.335 \; [\; 0.255; 0.411]$ | $0.370\ [0.350; 0.390]$ | 0.014 | 5177.542(229)* | 159.119(1)* |
| Honesty | $0.173\ [0.138;\ 0.207]$ | $0.284\ [0.251;\ 0.316]$ | $0.224\ [0.203;\ 0.245]$ | $0.130\ [\ 0.103;\ 0.156]$ | $0.235\ [0.210; 0.259]$ | $0.311\ [0.287;\ 0.335]$ | $0.216 \; [\; 0.138; 0.291]$ | $0.226\ [0.205; 0.247]$ | 0.006 | $2148.538(197)^*$ | 34.506(1)* |
| Hope | $0.298\ [0.253;\ 0.340]$ | $0.600\ [0.569;\ 0.629]$ | $0.485\ [0.457;\ 0.512]$ | $0.328\ [\ 0.293;\ 0.363]$ | $0.511\ [0.482; 0.539]$ | $0.453 \ [0.422; \ 0.484]$ | $0.484\ [\ 0.409;\ 0.553]$ | $0.465\ [0.437; 0.492]$ | 0.025 | $7128.935(222)^*$ | 58.854(1)* |
| Humility | $0.096\ [0.059;\ 0.132]$ | $0.075\ [0.038;\ 0.111]$ | $0.076\ [0.053;\ 0.098]$ | $0.041\ [\ 0.014;\ 0.069]$ | $0.043\ [0.016;\ 0.070]$ | $0.050\ [0.023;\ 0.078]$ | $0.053\ [-0.029;\ 0.134]$ | $0.060\ [0.044;\ 0.077]$ | 0.007 | 1779.295(202)* | 2.025(1) |
| Humor | 0.206 [0.172; 0.240] | 0.382 [0.351; 0.412] | 0.234 [0.213; 0.254] | 0.108 [0.082; 0.133] | 0.282 [0.259; 0.305] | 0.274 [0.250; 0.298] | 0.252 [0.176; 0.326] | 0.241 [0.222; 0.260] | 0.006 | 2610.984(219)* | 48.054(1)* |
| Judgment | $0.156\ [0.119;\ 0.193]$ | $0.217\ [0.181;\ 0.253]$ | $0.176\ [0.151;\ 0.200]$ | $0.057 \; [\; 0.028; \; 0.087]$ | $0.233\ [0.206;\ 0.261]$ | 0.232 [0.204; 0.260] | $0.138 \; [\; 0.055; \; 0.219]$ | $0.177\ [0.157; 0.197]$ | 0.009 | 2251.728(199)* | 16.354(1)* |
| Kindness | $0.201\ [0.164;\ 0.237]$ | $0.273\ [0.236;\ 0.308]$ | $0.207\ [0.183;\ 0.230]$ | $0.091\ [\ 0.062;\ 0.120]$ | $0.234\ [0.207; 0.261]$ | $0.260\ [0.233;\ 0.286]$ | $0.181\ [\ 0.099;\ 0.261]$ | $0.213\ [0.192; 0.233]$ | 0.009 | 1855.444(207)* | 87.656(1)* |
| Leadership | $0.184\ [0.184;\ 0.184]$ | $0.304\ [0.277;\ 0.331]$ | $0.238\ [0.223;\ 0.253]$ | $0.119 \; [\; 0.096; 0.141]$ | $0.282\ [0.262; 0.302]$ | $0.285 \ [0.265; \ 0.305]$ | $0.185\ [\ 0.112;\ 0.255]$ | $0.237\ [0.220; 0.254]$ | 0.003 | 2005.695(200)* | 62.843(1)* |
| Love of learning | $0.207\ [0.168;\ 0.245]$ | $0.300\ [0.264;\ 0.336]$ | $0.177\ [0.150;\ 0.203]$ | $0.133\ [\ 0.102;\ 0.164]$ | $0.277\ [0.249; 0.305]$ | $0.219\ [0.189;\ 0.248]$ | $0.173\ [\ 0.088;\ 0.255]$ | $0.205\ [0.183;\ 0.226]$ | 0.012 | 3355.213(206)* | 20.031(1)* |
| Love | 0.313 [0.277; 0.349] | 0.418 [0.385; 0.450] | 0.387 [0.365; 0.409] | 0.163 [0.133; 0.192] | 0.328 [0.301; 0.354] | 0.383 [0.357; 0.408] | 0.370 [0.294; 0.441] | 0.358 [0.335; 0.381] | 0.011 | 4400.771(210)* | 68.281(1)* |
| Perseverance | $0.225\ [0.188;\ 0.261]$ | $0.361\ [0.327;\ 0.394]$ | $0.310\ [0.287;\ 0.333]$ | $0.160\ [\ 0.130;\ 0.189]$ | $0.340\ [0.314;\ 0.366]$ | $0.354\ [0.328;\ 0.380]$ | $0.251\ [\ 0.170;\ 0.329]$ | $0.302\ [0.282; 0.322]$ | 0.009 | 3270.691(201)* | 41.995(1)* |
| Perspective | $0.179\ [0.142;\ 0.216]$ | $0.332\ [0.297;\ 0.365]$ | $0.271\ [0.247;\ 0.294]$ | $0.115 \; [\; 0.086; 0.144]$ | $0.326\ [0.300; 0.352]$ | $0.308 \ [0.281; \ 0.335]$ | $0.220\ [\ 0.139;\ 0.298]$ | $0.254\ [0.234;\ 0.274]$ | 0.009 | 2652.845(200)* | 73.729(1)* |
| Prudence | $0.140\ [0.102;\ 0.178]$ | $0.163\ [0.125;\ 0.201]$ | $0.172\ [0.147;\ 0.197]$ | $0.101\ [\ 0.071;\ 0.131]$ | $0.163\ [0.134;\ 0.192]$ | 0.180 [0.150; 0.208] | 0.078 [-0.007; 0.161] | $0.157\ [0.135;\ 0.178]$ | 0.009 | 2125.283(195)* | 1.467(1) |
| Self regulation | $0.155\ [0.119;\ 0.191]$ | $0.274\ [0.240;\ 0.308]$ | $0.269\ [0.247;\ 0.290]$ | $0.227\ [\ 0.201;\ 0.254]$ | $0.284\ [0.259; 0.309]$ | $0.255\ [0.229;\ 0.281]$ | $0.165\ [\ 0.085;\ 0.244]$ | $0.245\ [0.226; 0.264]$ | 0.007 | 3412.153(203)* | 1.518(1) |
| Social intelligence | 0.216 [0.181; 0.250] | 0.367 [0.335; 0.399] | 0.278 [0.256; 0.299] | 0.138 [0.111; 0.164] | $0.335\ [0.311; 0.358]$ | $0.326\ [0.301;\ 0.350]$ | 0.242 [0.164; 0.318] | 0.275 [0.255; 0.295] | 0.007 | 2230.926(211)* | 72.529(1)* |
| Spirituality | $0.146\ [0.109;\ 0.183]$ | $0.287\ [0.252;\ 0.321]$ | $0.219\ [0.195;\ 0.242]$ | $0.087\;[\;0.058;0.116]$ | $0.222\ [0.195;\ 0.249]$ | $0.194\ [0.166;\ 0.222]$ | $0.183\ [\ 0.101;\ 0.262]$ | $0.200\ [0.181; 0.220]$ | 0.008 | 4855.399(206)* | 65.422(1)* |
| Teamwork | $0.245\ [0.211;\ 0.278]$ | $0.282\ [0.248;\ 0.316]$ | $0.251\ [0.229;\ 0.272]$ | $0.163\ [\ 0.136;\ 0.190]$ | $0.248\ [0.222;\ 0.273]$ | $0.274\ [0.248;\ 0.299]$ | $0.240\ [\ 0.162;\ 0.315]$ | $0.246\ [0.227; 0.264]$ | 0.007 | 1574.225(201)* | 32.782(1)* |
| Zest | $0.352\ [0.314; 0.389]$ | $0.607\ [0.575;\ 0.637]$ | $0.447\ [0.416;\ 0.478]$ | $0.248\ [\ 0.208;\ 0.287]$ | $0.522\ [0.491;\ 0.551]$ | $0.422\ [0.387;\ 0.456]$ | $0.403\ [\ 0.320;\ 0.480]$ | 0.456 [0.429; 0.482] | 0.029 | 5762.106(211)* | 98.822(1)* |

^{*} QM indicates the Q test for the moderator analysis

Detailed results on short vs long VIA formats (MH)

Table 7 ${\it Moderator~analysis~testing~for~differences~between~short~and~long~VIA~formats~on~MH}$ ${\it outcomes}$

| Strength | r long | N | k | r short | N | k | delta r | delta CI | se | z | tau2 | Q | $_{\mathrm{QM}}$ |
|------------------------|--------------------------|-------|----|------------------------|------------|----|---------|---------------------|-------|--------|-------|----------|------------------|
| Appreciation of beauty | 0.02 [-0.05; 0.09] | 8,148 | 9 | 0.02 [-0.03; 0.07] | 21,852 | 28 | 0.003* | [-0.084; 0.091] | 0.045 | 0.076 | 0.008 | 309.345* | 0.006 |
| Bravery | $0.1 \ [0.01; \ 0.19]$ | 8,125 | 8 | $0.11\ [0.05;\ 0.17]$ | 21,852 | 28 | 0.009* | [-0.101; 0.119] | 0.056 | 0.154 | 0.014 | 395.030* | 0.024 |
| Creativity | $0.07\ [0.01;\ 0.12]$ | 9,580 | 9 | $0.13\ [0.09;\ 0.17]$ | 22,845 | 31 | 0.064* | [-0.004;0.132] | 0.035 | 1.842 | 0.007 | 407.474* | 3.394 |
| Curiosity | $0.23\ [0.16;\ 0.29]$ | 9,580 | 9 | $0.2\ [0.15;\ 0.24]$ | 21,852 | 28 | -0.030* | [-0.109; 0.049] | 0.041 | -0.752 | 0.007 | 308.861* | 0.566 |
| Fairness | $0.07\ [0;\ 0.14]$ | 7,853 | 7 | $0.08\ [0.04;\ 0.12]$ | 20,792 | 27 | 0.011* | [-0.069; 0.091] | 0.041 | 0.267 | 0.006 | 261.226* | 0.071 |
| Forgiveness | $0.19\ [0.15;\ 0.23]$ | 9,542 | 14 | 0.13 [0.12; 0.14] | 21,852 | 28 | -0.068* | [-0.112; -0.024] | 0.022 | -3.045 | 0.005 | 171.521* | 9.271* |
| Gratitude | $0.21\ [0.13;\ 0.28]$ | 8,708 | 11 | $0.27\ [0.21;\ 0.32]$ | 23,019 | 31 | 0.062* | [-0.037; 0.159] | 0.050 | 1.231 | 0.013 | 539.412* | 1.515 |
| Honesty | $0.05 \ [-0.05; \ 0.15]$ | 8,125 | 8 | $0.15\ [0.08;\ 0.22]$ | 21,852 | 28 | 0.103* | [-0.019;0.221] | 0.062 | 1.656 | 0.016 | 362.492* | 2.743 |
| Норе | $0.32\ [0.24;\ 0.39]$ | 9,620 | 13 | $0.41\ [0.38;\ 0.44]$ | 21,852 | 28 | 0.109* | $[\ 0.022;\ 0.195]$ | 0.045 | 2.443 | 0.020 | 672.510* | 5.966 |
| Humility | -0.01 [-0.05; 0.04] | 7,853 | 7 | $0.01\ [-0.01;\ 0.04]$ | 21,852 | 28 | 0.020* | [-0.032;0.071] | 0.026 | 0.749 | 0.002 | 93.642* | 0.561 |
| Humor | $0.19\ [0.12;\ 0.25]$ | 8,148 | 9 | 0.13 [0.13; 0.13] | 21,852 | 28 | -0.057* | [-0.123; 0.009] | 0.034 | -1.685 | 0.009 | 303.011* | 2.839 |
| Judgment | $0.13\ [0.07;\ 0.19]$ | 9,780 | 10 | $0.1\ [0.06;\ 0.15]$ | $21,\!852$ | 28 | -0.023* | [-0.101;0.054] | 0.040 | -0.591 | 0.007 | 312.441* | 0.350 |
| Kindness | $0.07 \ [0; \ 0.13]$ | 8,125 | 8 | $0.06\ [0.01;\ 0.1]$ | $21,\!852$ | 28 | -0.012* | $[-0.091;\ 0.068]$ | 0.040 | -0.286 | 0.007 | 227.166* | 0.082 |
| Leadership | $0.11\ [0.03;\ 0.19]$ | 7,853 | 7 | $0.16\ [0.11;\ 0.2]$ | $21,\!852$ | 28 | 0.048* | [-0.045;0.140] | 0.047 | 1.016 | 0.010 | 337.771* | 1.033 |
| Love of learning | $0.15\ [0.07;\ 0.22]$ | 9,580 | 9 | $0.15\ [0.1;\ 0.2]$ | 21,852 | 28 | 0.004* | [-0.090; 0.098] | 0.048 | 0.087 | 0.011 | 423.460* | 0.008 |
| Love | $0.19\ [0.07;\ 0.3]$ | 7,853 | 7 | 0.27 [0.2; 0.34] | 21,852 | 28 | 0.090* | [-0.055; 0.230] | 0.074 | 1.219 | 0.021 | 811.155* | 1.485 |
| Perseverance | $0.17\ [0.09;\ 0.25]$ | 8,853 | 9 | $0.24\ [0.19;\ 0.3]$ | 21,852 | 28 | 0.073* | [-0.028;0.172] | 0.052 | 1.414 | 0.011 | 383.695* | 2.000 |
| Perspective | $0.16\ [0.1;\ 0.23]$ | 9,580 | 9 | $0.11\ [0.06;\ 0.16]$ | $21,\!852$ | 28 | -0.053* | [-0.136;0.030] | 0.042 | -1.263 | 0.009 | 340.488* | 1.596 |
| Prudence | 0.07 [-0.03; 0.17] | 7,853 | 7 | $0.13\ [0.06;\ 0.19]$ | 21,852 | 28 | 0.058* | [-0.065;0.179] | 0.063 | 0.928 | 0.015 | 573.706* | 0.861 |
| Self regulation | $0.19\ [0.11;\ 0.27]$ | 8,329 | 9 | $0.22\ [0.17;\ 0.28]$ | 21,852 | 28 | 0.038* | [-0.063;0.138] | 0.051 | 0.733 | 0.011 | 392.432* | 0.538 |
| Social intelligence | 0.13 [0.05; 0.21] | 9,460 | 9 | 0.19 [0.13; 0.24] | 21,852 | 28 | 0.056* | [-0.048; 0.158] | 0.053 | 1.057 | 0.013 | 482.404* | 1.117 |
| Spirituality | $0.11\ [0.04;\ 0.18]$ | 8,348 | 10 | $0.13\ [0.07;\ 0.18]$ | $21,\!852$ | 28 | 0.014* | [-0.075;0.104] | 0.046 | 0.315 | 0.009 | 369.683* | 0.099 |
| Teamwork | $0.1\ [0.01;\ 0.17]$ | 7,853 | 7 | $0.16\ [0.1;\ 0.21]$ | 21,852 | 28 | 0.062* | [-0.035; 0.159] | 0.050 | 1.253 | 0.009 | 351.751* | 1.569 |
| Zest | 0.31 [0.21; 0.41] | 8,053 | 8 | 0.43 [0.36; 0.49] | 21,852 | 28 | 0.132* | [-0.006; 0.265] | 0.071 | 1.879 | 0.023 | 854.484* | 3.532 |

 $^{^{\}ast}$ QM indicates the Q test for the moderator analysis

Detailed results on specific mental health outcome

Table 8 ${\it Moderator~analysis~testing~for~differences~between~specific~MH~outcomes}$

| Strength | Anxiety | Depression | General mental health | Stress | Overall effect | tau2 | Q | QM |
|------------------------|-------------------------|-----------------------|--------------------------|------------------------|-----------------------|-------|-----------|----------|
| Appreciation of beauty | -0.04 [-0.1; 0.01] | 0.02 [-0.02; 0.07] | 0.06 [-0.01; 0.12] | 0 [-0.06; 0.06] | 0.05 [0.02; 0.07] | 0.008 | 1876.741* | 95.250* |
| Bravery | $0.06 \ [0; \ 0.12]$ | $0.14\ [0.09;\ 0.19]$ | $0.12\ [0.05;\ 0.19]$ | $0.09\ [0.03;\ 0.15]$ | $0.14\ [0.11;\ 0.17]$ | 0.011 | 2781.526* | 56.466* |
| Creativity | 0.02 [-0.03; 0.07] | $0.12\ [0.08;\ 0.17]$ | $0.14\ [0.07;\ 0.2]$ | 0.06 [0.01; 0.11] | 0.09 [0.07; 0.12] | 0.009 | 3516.879* | 96.736* |
| Curiosity | $0.1\ [0.05;\ 0.15]$ | $0.24\ [0.2;\ 0.28]$ | $0.22\ [0.16;\ 0.27]$ | $0.16\ [0.1;\ 0.21]$ | $0.22\ [0.18;\ 0.24]$ | 0.008 | 4103.610* | 117.633* |
| Fairness | $0.05\ [0;\ 0.1]$ | $0.07\ [0.03;\ 0.1]$ | $0.09\ [0.03;\ 0.14]$ | $0.11\ [0.06;\ 0.16]$ | $0.12\ [0.09;\ 0.14]$ | 0.006 | 1149.414* | 35.469* |
| Forgiveness | 0.11 [0.08; 0.15] | 0.16 [0.13; 0.18] | 0.14 [0.09; 0.19] | 0.21 [0.16; 0.25] | $0.17\ [0.15;\ 0.2]$ | 0.005 | 1109.798* | 13.961* |
| Gratitude | $0.12\ [0.06;\ 0.18]$ | $0.29\ [0.24;\ 0.33]$ | $0.2\ [0.14;\ 0.27]$ | $0.19\ [0.12;\ 0.25]$ | $0.25\ [0.22;\ 0.28]$ | 0.015 | 5177.542* | 159.119* |
| Honesty | $0.1\ [0.05;\ 0.16]$ | $0.16\ [0.11;\ 0.2]$ | $0.12\ [0.05;\ 0.18]$ | $0.13\ [0.07;\ 0.19]$ | $0.16\ [0.14; 0.19]$ | 0.009 | 2148.538* | 34.506* |
| Hope | $0.25\ [0.19;\ 0.32]$ | $0.41\ [0.36;\ 0.46]$ | $0.3\ [0.22;\ 0.37]$ | $0.29\ [0.22;\ 0.36]$ | $0.4\ [0.36;\ 0.43]$ | 0.023 | 7128.935* | 58.854* |
| Humility | -0.01 [-0.03; 0.01] | -0.02 [-0.03; 0] | $0.03 \ [-0.01; \ 0.08]$ | $0.03\ [-0.01;\ 0.06]$ | $0.04\ [0.02;\ 0.07]$ | 0.002 | 1779.295* | 2.025 |
| Humor | 0.1 [0.08; 0.12] | 0.16 [0.14; 0.18] | $0.2\ [0.14;\ 0.26]$ | 0.11 [0.07; 0.16] | $0.17\ [0.14;\ 0.2]$ | 0.011 | 2610.984* | 48.054* |
| Judgment | $0.09\ [0.04;\ 0.14]$ | $0.12\ [0.08;\ 0.16]$ | $0.11\ [0.05;\ 0.17]$ | $0.12\ [0.07;\ 0.17]$ | $0.13\ [0.11;\ 0.16]$ | 0.007 | 2251.728* | 16.354* |
| Kindness | 0.01 [-0.04; 0.07] | $0.07\ [0.03;\ 0.11]$ | $0.05 \ [-0.01; \ 0.11]$ | $0.06 \ [0; \ 0.12]$ | 0.11 [0.09; 0.14] | 0.007 | 1855.444* | 87.656* |
| Leadership | $0.09\ [0.04;\ 0.15]$ | $0.15\ [0.1;\ 0.2]$ | $0.15\ [0.08;\ 0.22]$ | $0.09\ [0.03;\ 0.15]$ | $0.16\ [0.13;\ 0.18]$ | 0.012 | 2005.695* | 62.843* |
| Love of learning | $0.08\ [0.02;\ 0.13]$ | $0.17\ [0.12;\ 0.21]$ | $0.17\ [0.11;\ 0.24]$ | $0.11\ [0.05;\ 0.16]$ | $0.16\ [0.13;\ 0.18]$ | 0.012 | 3355.213* | 20.031* |
| Love | 0.14 [0.06; 0.22] | 0.3 [0.23; 0.36] | $0.19\ [0.1;\ 0.27]$ | 0.16 [0.08; 0.24] | 0.28 [0.24; 0.3] | 0.025 | 4400.771* | 68.281* |
| Perseverance | $0.14\ [0.08;\ 0.2]$ | $0.26\ [0.21;\ 0.32]$ | $0.16\ [0.09;\ 0.23]$ | $0.15\ [0.08;\ 0.22]$ | $0.24\ [0.21;\ 0.26]$ | 0.015 | 3270.691* | 41.995* |
| Perspective | 0.05 [-0.01; 0.11] | $0.15 \ [0.1; \ 0.2]$ | $0.13\ [0.06;\ 0.2]$ | $0.1\ [0.04;\ 0.16]$ | $0.16\ [0.14;\ 0.19]$ | 0.011 | 2652.845* | 73.729* |
| Prudence | $0.08 \ [0.02; \ 0.15]$ | $0.12\ [0.06;\ 0.18]$ | 0.08 [0; 0.16] | $0.13\ [0.06;\ 0.2]$ | $0.14\ [0.12;\ 0.17]$ | 0.017 | 2125.283* | 1.467 |
| Self regulation | $0.2\ [0.15;\ 0.25]$ | $0.21\ [0.17;\ 0.25]$ | $0.23\ [0.17;\ 0.29]$ | $0.29\ [0.23;\ 0.34]$ | $0.23\ [0.21;\ 0.26]$ | 0.010 | 3412.153* | 1.518 |
| Social intelligence | 0.1 [0.04; 0.16] | 0.17 [0.12; 0.22] | $0.18 \ [0.12; \ 0.25]$ | 0.16 [0.1; 0.22] | 0.19 [0.17; 0.22] | 0.013 | 2230.926* | 72.529* |
| Spirituality | 0.04 [-0.02; 0.09] | $0.15\ [0.11;\ 0.2]$ | $0.08\ [0.02;\ 0.14]$ | 0.07 [0.01; 0.13] | 0.12 [0.09; 0.14] | 0.009 | 4855.399* | 65.422* |
| Teamwork | $0.09\ [0.03;\ 0.15]$ | $0.15\ [0.1;\ 0.2]$ | $0.13 \ [0.06; \ 0.2]$ | 0.11 [0.05; 0.18] | 0.19 [0.16; 0.21] | 0.011 | 1574.225* | 32.782* |
| Zest | $0.23\ [0.15;\ 0.3]$ | $0.44\ [0.37;\ 0.5]$ | $0.32\ [0.24;\ 0.4]$ | $0.27\ [0.19;\ 0.34]$ | $0.36\ [0.33;\ 0.4]$ | 0.030 | 5762.106* | 98.822* |

 $^{^{\}ast}$ QM indicates the Q test for the moderator analysis

Clinical and non-clinical samples

For what concerns clinical and non-clinical population, results for both well-being and mental health outcomes are mainly inconclusive. Indeed, although effects are generally higher in non-clinical populations, effects within clinical populations are extremely heterogeneous and significance tests not informative. The high heterogeneity of the findings, other than visually clear, is supported by the Q and tau statistics. According to these results, we did not proceed with further analysis of clinical populations.

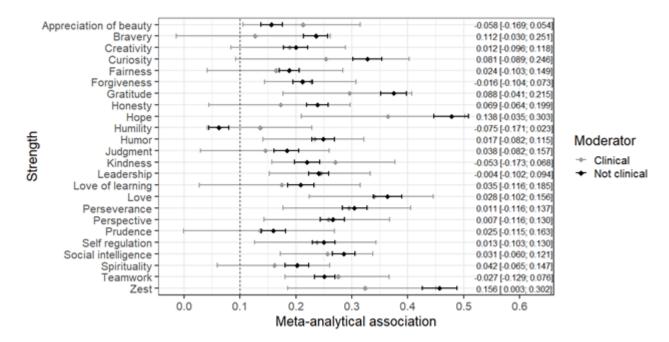


Figure 1. Well-being associations by population

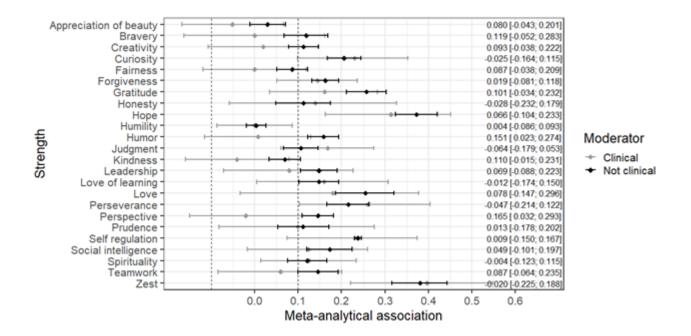


Figure 2. Mental health associations by population

Well-being - Detailed results on clinical vs non-clinical population

 $\label{thm:continuous} \begin{tabular}{ll} Table 9 \\ Moderator \ analysis \ testing for \ differences \ between \ clinical \ and \ non-clinical \ population \ on \ WB \ outcomes \end{tabular}$

| Strength | r clinical | N | k | r not clinical | N | k | delta r | delta CI | se | z | tau2 | Q | QM |
|------------------------|---------------------------|-------|----|--------------------------|-------------|-----|---------|--------------------|-------|--------|-------|-----------|-------|
| Appreciation of beauty | 0.213 [0.105; 0.315] | 736 | 9 | 0.156 [0.137; 0.176] | 267,230 | 160 | -0.058* | [-0.169; 0.054] | 0.057 | -1.019 | 0.006 | 1545.426* | 1.039 |
| Bravery | $0.127\ [-0.014;\ 0.262]$ | 541 | 6 | $0.236\ [0.214; 0.257]$ | 266,645 | 159 | 0.112* | [-0.030; 0.251] | 0.073 | 1.544 | 0.009 | 2378.246* | 2.385 |
| Creativity | $0.189\ [0.084;\ 0.289]$ | 835 | 8 | $0.2\ [0.178;\ 0.221]$ | 266,911 | 159 | 0.012* | [-0.096; 0.118] | 0.055 | 0.210 | 0.009 | 3056.944* | 0.044 |
| Curiosity | $0.254\ [0.092;\ 0.403]$ | 541 | 6 | $0.328\ [0.302;\ 0.354]$ | 270,305 | 168 | 0.081* | [-0.089; 0.246] | 0.087 | 0.935 | 0.017 | 3747.449* | 0.875 |
| Fairness | $0.165\ [0.041;\ 0.284]$ | 541 | 6 | $0.188\ [0.17;\ 0.206]$ | $267,\!164$ | 159 | 0.024* | $[-0.103;\ 0.149]$ | 0.065 | 0.366 | 0.006 | 887.618* | 0.134 |
| Forgiveness | 0.228 [0.144; 0.308] | 3,061 | 11 | $0.212\ [0.195;\ 0.23]$ | 268,016 | 163 | -0.016* | [-0.104; 0.073] | 0.045 | -0.351 | 0.006 | 892.563* | 0.123 |
| Gratitude | $0.296\ [0.177;\ 0.407]$ | 839 | 9 | $0.375\ [0.352; 0.398]$ | 288,992 | 180 | 0.088* | [-0.041; 0.215] | 0.066 | 1.344 | 0.015 | 4614.118* | 1.806 |
| Honesty | $0.173\ [0.044;\ 0.297]$ | 541 | 6 | $0.239\ [0.219;\ 0.258]$ | $266,\!583$ | 157 | 0.069* | [-0.064; 0.199] | 0.068 | 1.018 | 0.007 | 1779.311* | 1.037 |
| Норе | $0.365\ [0.21;\ 0.502]$ | 936 | 10 | $0.479\ [0.447;\ 0.509]$ | 312,224 | 173 | 0.138* | [-0.035; 0.303] | 0.089 | 1.565 | 0.035 | 6410.363* | 2.448 |
| Humility | $0.136\ [0.041;\ 0.229]$ | 2,861 | 10 | $0.062\ [0.044;\ 0.08]$ | 309,566 | 159 | -0.075 | $[-0.171;\ 0.023]$ | 0.050 | -1.497 | 0.006 | 1647.152* | 2.240 |
| Humor | $0.234\ [0.141;\ 0.322]$ | 3,089 | 14 | 0.249 [0.229; 0.269] | 313,335 | 170 | 0.017* | [-0.082; 0.115] | 0.050 | 0.330 | 0.008 | 2304.208* | 0.109 |
| Judgment | $0.146\ [0.029;\ 0.26]$ | 741 | 7 | $0.184\ [0.161;\ 0.205]$ | 266,266 | 156 | 0.038* | [-0.082; 0.157] | 0.061 | 0.623 | 0.009 | 1927.603* | 0.388 |
| Kindness | $0.271\ [0.157;\ 0.377]$ | 2,861 | 10 | $0.22\ [0.198;\ 0.243]$ | $269,\!415$ | 163 | -0.053* | [-0.173; 0.068] | 0.062 | -0.864 | 0.010 | 1566.264* | 0.746 |
| Leadership | $0.245\ [0.152; 0.333]$ | 2,861 | 10 | $0.241\ [0.223;\ 0.259]$ | 266,646 | 157 | -0.004* | [-0.102; 0.094] | 0.050 | -0.079 | 0.006 | 1659.616* | 0.006 |
| Love of learning | $0.175\ [0.027;\ 0.315]$ | 541 | 6 | $0.209\ [0.185;\ 0.232]$ | $269,\!402$ | 165 | 0.035* | $[-0.116;\ 0.185]$ | 0.077 | 0.454 | 0.011 | 2927.249* | 0.207 |
| Love | $0.34\ [0.224;\ 0.446]$ | 2,959 | 12 | $0.364\ [0.339;\ 0.389]$ | 267,651 | 165 | 0.028* | [-0.102; 0.156] | 0.066 | 0.418 | 0.016 | 3534.890* | 0.175 |
| Perseverance | $0.295\ [0.177;\ 0.405]$ | 736 | 9 | $0.305\ [0.283;\ 0.327]$ | $266,\!452$ | 157 | 0.011* | [-0.116; 0.137] | 0.065 | 0.169 | 0.010 | 2884.703* | 0.028 |
| Perspective | $0.259\ [0.143;\ 0.368]$ | 736 | 9 | $0.266\ [0.244;\ 0.287]$ | 266,266 | 156 | 0.007* | [-0.116; 0.130] | 0.063 | 0.116 | 0.009 | 2306.838* | 0.014 |
| Prudence | 0.136 [-0.001; 0.269] | 541 | 6 | $0.16\ [0.138;\ 0.182]$ | 266,266 | 156 | 0.025 | [-0.115; 0.163] | 0.072 | 0.345 | 0.009 | 1535.270* | 0.119 |
| Self regulation | $0.238\ [0.126;\ 0.343]$ | 736 | 9 | $0.25\ [0.23;\ 0.27]$ | 266,566 | 159 | 0.013 | [-0.103; 0.130] | 0.060 | 0.225 | 0.008 | 3019.271* | 0.051 |
| Social intelligence | $0.257\ [0.172;\ 0.338]$ | 3,355 | 13 | 0.286 [0.265; 0.306] | 271,332 | 163 | 0.031* | [-0.060; 0.121] | 0.046 | 0.666 | 0.009 | 1709.413* | 0.443 |
| Spirituality | $0.162\ [0.059;\ 0.261]$ | 936 | 10 | $0.202\ [0.181;\ 0.223]$ | 267,230 | 160 | 0.042* | [-0.065; 0.147] | 0.054 | 0.771 | 0.008 | 4473.693* | 0.594 |
| Teamwork | $0.276\ [0.181;\ 0.367]$ | 2,861 | 10 | $0.251\ [0.233;\ 0.27]$ | 266,949 | 158 | -0.027* | [-0.129; 0.076] | 0.053 | -0.510 | 0.007 | 1177.968* | 0.260 |
| Zest | 0.324 [0.185; 0.451] | 1,034 | 12 | 0.457 [0.426; 0.488] | 286,878 | 164 | 0.156* | [0.003; 0.302] | 0.079 | 1.998 | 0.031 | 4831.587* | 3.991 |

 $^{^{\}ast}$ QM indicates the Q test for the moderator analysis

Mental health - Detailed results on clinical vs non-clinical populations

Table 10 $\label{eq:moderator} \textit{Moderator analysis testing for differences between clinical and non-clinical populations on } \textit{MH outcomes}$

| Strength | r MH | N MH | k MH | r WB | N WB | k WB | delta r | delta CI | se | Z | tau2 | Q | QM |
|------------------------|---------------------------------------|-------|------|-----------------------|------------|------|---------|---------------------|-------|--------|-------|----------|-------|
| Appreciation of beauty | -0.05 [-0.17; 0.07] | 1,302 | 3 | 0.03 [-0.01; 0.07] | 28,698 | 34 | 0.080 | [-0.043; 0.201] | 0.063 | 1.277 | 0.007 | 316.195* | 1.630 |
| Bravery | 0 [-0.16; 0.16] | 1,248 | 2 | 0.12 [0.07; 0.17] | 28,729 | 34 | 0.119 | [-0.052; 0.283] | 0.088 | 1.360 | 0.012 | 376.350* | 1.851 |
| Creativity | 0.02 [-0.11; 0.15] | 1,248 | 2 | 0.11 [0.08; 0.15] | 31,177 | 38 | 0.093 | [-0.038; 0.222] | 0.067 | 1.394 | 0.007 | 449.430* | 1.943 |
| Curiosity | $0.23\ [0.1;\ 0.35]$ | 1,248 | 2 | $0.21\ [0.17;\ 0.24]$ | 30,184 | 35 | -0.025 | [-0.164; 0.115] | 0.072 | -0.352 | 0.008 | 350.378* | 0.124 |
| Fairness | 0 [-0.12; 0.12] | 1,248 | 2 | $0.09\ [0.05;\ 0.12]$ | 27,397 | 32 | 0.087 | [-0.038; 0.209] | 0.064 | 1.367 | 0.006 | 252.068* | 1.870 |
| Forgiveness | $0.14\ [0.05;\ 0.24]$ | 1,502 | 4 | 0.16 [0.13; 0.19] | 29,892 | 38 | 0.019 | [-0.081; 0.118] | 0.051 | 0.367 | 0.005 | 177.684* | 0.135 |
| Gratitude | $0.16\ [0.04;\ 0.28]$ | 1,502 | 4 | $0.26\ [0.21;\ 0.3]$ | 30,225 | 38 | 0.101 | [-0.034; 0.232] | 0.069 | 1.465 | 0.013 | 526.271* | 2.145 |
| Honesty | 0.14 [-0.06; 0.33] | 1,248 | 2 | $0.11\ [0.05;\ 0.17]$ | 28,729 | 34 | -0.028 | [-0.232; 0.179] | 0.106 | -0.259 | 0.019 | 365.045* | 0.067 |
| Hope | $0.31\ [0.16;\ 0.45]$ | 1,502 | 4 | $0.37\ [0.32;\ 0.42]$ | 29,970 | 37 | 0.066 | [-0.104; 0.233] | 0.087 | 0.759 | 0.022 | 671.131* | 0.577 |
| Humility | 0 [-0.09; 0.09] | 1,248 | 2 | $0\ [-0.02;\ 0.03]$ | 28,457 | 33 | 0.004 | $[-0.086;\ 0.093]$ | 0.046 | 0.077 | 0.002 | 100.592* | 0.006 |
| Humor | 0.01 [-0.12; 0.13] | 1,302 | 3 | 0.16 [0.12; 0.19] | 28,698 | 34 | 0.151 | $[\ 0.023;\ 0.274]$ | 0.066 | 2.316 | 0.008 | 268.692* | 5.366 |
| Judgment | $0.17\ [0.06;\ 0.27]$ | 1,448 | 3 | $0.11\ [0.07; 0.15]$ | 30,184 | 35 | -0.064 | [-0.179;0.053] | 0.060 | -1.069 | 0.007 | 320.848* | 1.144 |
| Kindness | -0.04 [-0.16; 0.08] | 1,248 | 2 | $0.07\ [0.03;\ 0.11]$ | 28,729 | 34 | 0.110 | [-0.015;0.231] | 0.064 | 1.725 | 0.006 | 215.360* | 2.977 |
| Leadership | $0.08\ [-0.07;\ 0.23]$ | 1,248 | 2 | $0.15\ [0.11;\ 0.19]$ | $28,\!457$ | 33 | 0.069 | [-0.088; 0.223] | 0.080 | 0.862 | 0.010 | 338.076* | 0.743 |
| Love of learning | $0.16\ [0; 0.31]$ | 1,248 | 2 | $0.15\ [0.1;\ 0.19]$ | 30,184 | 35 | -0.012 | $[-0.174;\ 0.150]$ | 0.083 | -0.147 | 0.011 | 427.704* | 0.022 |
| Love | 0.18 [-0.03; 0.38] | 1,248 | 2 | $0.26\ [0.19;\ 0.32]$ | 28,457 | 33 | 0.078 | [-0.147; 0.296] | 0.116 | 0.679 | 0.023 | 796.924* | 0.461 |
| Perseverance | $0.26\ [0.1;\ 0.4]$ | 1,248 | 2 | $0.22\ [0.17;\ 0.26]$ | $29,\!457$ | 35 | -0.047 | $[-0.214;\ 0.122]$ | 0.087 | -0.543 | 0.012 | 385.437* | 0.295 |
| Perspective | $\hbox{-}0.02 [\hbox{-}0.15; 0.11]$ | 1,248 | 2 | $0.15\ [0.11;\ 0.18]$ | 30,184 | 35 | 0.165 | $[\ 0.032;\ 0.293]$ | 0.069 | 2.420 | 0.007 | 314.056* | 5.854 |
| Prudence | $0.1\ [-0.08;\ 0.28]$ | 1,248 | 2 | $0.11\ [0.05;\ 0.17]$ | $28,\!457$ | 33 | 0.013 | $[-0.178;\ 0.202]$ | 0.098 | 0.128 | 0.016 | 585.947* | 0.016 |
| Self regulation | $0.23\ [0.07; 0.37]$ | 1,248 | 2 | $0.24\ [0.23;\ 0.25]$ | 28,933 | 35 | 0.009 | [-0.150;0.167] | 0.081 | 0.105 | 0.012 | 392.450* | 0.011 |
| Social intelligence | 0.12 [-0.02; 0.26] | 1,448 | 3 | 0.17 [0.12; 0.22] | 29,864 | 34 | 0.049 | [-0.101; 0.197] | 0.077 | 0.641 | 0.013 | 480.730* | 0.411 |
| Spirituality | $0.12\ [0.01;\ 0.23]$ | 1,502 | 4 | $0.12\ [0.08;\ 0.17]$ | 28,698 | 34 | -0.004 | [-0.123; 0.115] | 0.061 | -0.069 | 0.009 | 370.803* | 0.005 |
| Teamwork | 0.06 [-0.08; 0.2] | 1,248 | 2 | $0.15\ [0.1;\ 0.19]$ | $28,\!457$ | 33 | 0.087 | [-0.064; 0.235] | 0.077 | 1.130 | 0.009 | 360.489* | 1.277 |
| Zest | $0.4\ [0.22;\ 0.55]$ | 1,448 | 3 | $0.38\ [0.32;\ 0.44]$ | 28,783 | 34 | -0.020 | [-0.225; 0.188] | 0.107 | -0.182 | 0.027 | 885.156* | 0.033 |

 $^{^{\}ast}$ QM indicates the Q test for the moderator analysis