**Supplementary Materials**

Using Network Analysis to Improve Understanding and Utility of the 10-item Autism-Spectrum Quotient (AQ10)

Lucy H Waldren, Lucy A Livingston, Florence Y N Leung, & Punit Shah

**Figure S1**



*Note.* Total AQ10 binary score distribution in a general population, non-clinical sample (*N* = 6595, see Gollwitzer *et al*., 2019 for further information).

**Figure S2**

****

*Note.* Estimated edge weight accuracy assessed through non-parametric bootstrapping (1000 resamples). Sample (red) and bootstrapped (black) edge weights, and 95% confidence intervals (shaded area) are reported.

**Table S1**

*Estimated Edge Weights*

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Item1 | Item2 | Item3 | Item4 | Item5 | Item6 | Item7 | Item8 | Item9 | Item10 |
| Item1 | --- |  |  |  |  |  |  |  |  |  |
| Item2 | 0.00 | --- |  |  |  |  |  |  |  |  |
| Item3 | -0.23 | 0.08 | --- |  |  |  |  |  |  |  |
| Item4 | 0.00 | 0.17 | 1.66 | --- |  |  |  |  |  |  |
| Item5 | -0.33 | 0.27 | 0.41 | 0.44 | --- |  |  |  |  |  |
| Item6 | 0.00 | 0.13 | 0.37 | 0.10 | 1.42 | --- |  |  |  |  |
| Item7 | -0.15 | 0.00 | 0.38 | 0.03 | 1.24 | 1.00 | --- |  |  |  |
| Item8 | 0.00 | -0.23 | -0.11 | 0.00 | 0.23 | 0.36 | 0.10 | --- |  |  |
| Item9 | 0.30 | 0.00 | 0.15 | 0.00 | 0.00 | 0.00 | 0.00 | 0.18 | --- |  |
| Item10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.54 | 0.00 | 0.97 | 1.13 | 0.00 | --- |

*Note.* Logistic regression coefficients for each edge weight association. Only non-zero edges are in the final network.

**Table S2**

|  |  |  |
| --- | --- | --- |
| Edge 1 | Edge 2 | 95% CI |
| Lower | Upper |
| Item3–Item4 | Item5–Item6 | -0.48 | 0.05 |
| Item3–Item4 | Item5–Item7 | -0.60 | -0.20 |
| Item3–Item4 | Item6–Item7 | -0.91 | -0.39 |
| Item3–Item4 | Item7–Item10 | -0.88 | -0.51 |
| Item3–Item4 | Item8–Item10 | -0.72 | -0.36 |
| Item5–Item6 | Item5–Item7 | -0.47 | 0.12 |
| Item5–Item6 | Item6–Item7 | -0.79 | -0.06 |
| Item5–Item6 | Item7–Item10 | -0.75 | -0.21 |
| Item5–Item6 | Item8–Item10 | -0.60 | -0.04 |

 *Edge Weight Difference Test*

*Note.* 95% bootstrapped confidence intervals comparing edge weight differences. Confidence intervals including 0 indicate no significant difference in edge weights.

**Figure S3**



*Note.*Centrality stability assessed through case-drop bootstrapping (1000 resamples) to 20% of the original sample. The correlation of centrality scores with the original sample (line) and 95% confidence intervals (shaded area) are reported.

**Figure S4**

*Note*. Betweenness and Closeness centrality measures (z-score) for each AQ10 item.

**Table S3**

*Centrality Values*

|  |  |  |  |
| --- | --- | --- | --- |
|  | Betweenness | Closeness | Expected Influence |
| Item1 | -0.13 | -0.65 | -1.67 |
| Item2 | -0.77 | -1.27 | -1.13 |
| Item3 | -0.34 | -0.03 | 0.39 |
| Item4 | -0.77 | -0.27 | 0.19 |
| Item5 | 2.24 | 1.50 | 1.39 |
| Item6 | -0.77 | 0.83 | 0.82 |
| Item7 | 1.16 | 1.09 | 0.96 |
| Item8 | -0.13 | 0.00 | -0.30 |
| Item9 | -0.77 | -1.62 | -0.99 |
| Item10 | 0.30 | 0.42 | 0.34 |

*Note.* Betweenness, Closeness, and Expected Influence centrality values (z-score) for each AQ10 item.