Internalizing and externalizing disorders in childhood and adolescence: A network approach

Eoin McElroy[1,2], Mark Shevlin[1], Jamie Murphy[1], Orla McBride[1]

[1] School of Psychology, Ulster University, Northern Ireland

[2] Department of Psychological Sciences, University of Liverpool, United Kingdom

Supplementary materials

DAWBA recoding

Official diagnoses were only available at the 7.5 year time point. In order to make use of data from subsequent time points, a comprehensive recoding strategy was employed. The DAWBA contains skip patterns; first respondents are asked about the presence and severity of symptoms, e.g. “In the last 4 weeks, have there been times when [Name] has been very sad, miserable, unhappy or tearful?”, “Over the last 4 weeks, has there been a period when s/he has been really miserable nearly every day?”. If the respondent does not endorse the requisite symptoms/severity, they are deemed to have screened negative for that particular disorder. If the requisite pattern of symptoms/severity is endorsed, respondents are next asked to rate on a 4-point Likert scale the levels of distress associated with the symptoms (e.g. “How much has his/her sadness, irritability or loss of interest upset or distressed him/her?”), and overall impaired functionality (e.g. “Has his/her sadness, irritability or loss of interest interfered with...”). As per the ALSPAC codebook, the various impaired functionality questions can be summed to form a total burden score. In order to create quasi-diagnostic variables that closely mirror DSM-IV diagnoses, children were coded with a 1 if they endorsed the requisite symptoms and severity, along with significant distress (score of 3 or 4 on distress question) or impaired functionality/burden (a score of +2 standard deviations above the mean on total burden variable). In the case of ODD, teacher complaint was used in place of distress. For CD, a binary variable reflecting ‘any frequent/definite troublesome behaviour’ was computed, as per ALSPAC codebook guidelines. This recoding process resulted in 8 binary quasi-diagnostic variables at each of the three time points.

Table S1. Bivariate Correlations

	SPP_7	SOP_7	PTSD_7	GAD_7	DEP_7	ADHD_7
SPP_7	1					
SOP_7	.172**	1				
PTSD_7	.135**	.098**	1			
GAD_7	.222**	.264**	.199**	1		
DEP_7	.161**	.177**	.175**	.402**	1	
ADHD_7	.092**	.144**	.101**	.240**	.223**	1
ODD_7	.098**	.160**	.128**	.219**	.228**	.576**
CD_7	.045**	.075**	.125**	.116**	.099**	.216**
SPP_10	.173**	.061**	.054**	.109**	.047**	.037*
SOP_10	.112**	.285**	.057**	.166**	.111**	.157**
PTSD_10	0.023	0.027	.136**	.062**	.076**	.081**
GAD_10	.168**	.143**	.087**	.249**	.175**	.185**
DEP_10	.090**	.070**	.099**	.140**	.202**	.131**
ADHD_10	.083**	.120**	.116**	.132**	.161**	.448**
ODD_10	.100**	.101**	.125**	.135**	.109**	.332**
CD_10	.044**	.038*	.080**	.050**	.090**	.145**
SPP_14	.113**	.050**	.048**	.122**	.074**	.067**
SOP_14	.118**	.221**	.056**	.130**	.088**	.116**
PTSD_14	.048**	0.029	.179**	.050**	.069**	.083**
GAD_14	.115**	.129**	.118**	.189**	.140**	.167**
DEP_14	.097**	.055**	.058**	.117**	.131**	.109**
ADHD_14	.068**	.088**	.094**	.127**	.097**	.347**
ODD_14	.044**	.063**	.063**	.098**	.085**	.264**
CD_14	0.000	0.025	0.023	.035*	0.027	.133**

**. Correlation is significant at the 0.01 level (2-tailed).

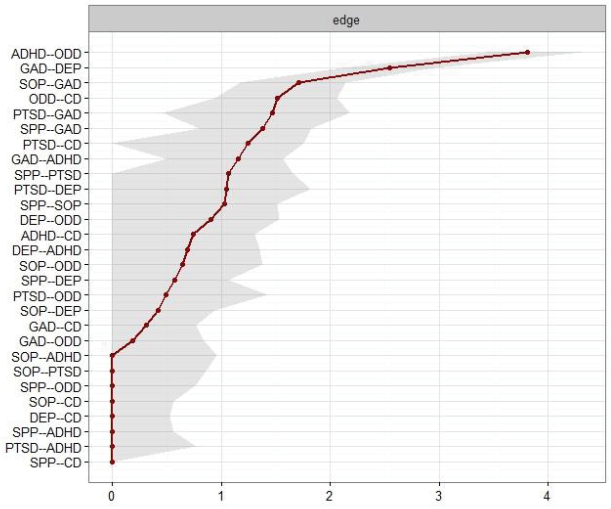
*. Correlation is significant at the 0.05 level (2-tailed).

ODD_7	CD_7	SPP_10	SOP_10	PTSD_10	GAD_10	DEP_10
1						
.260**	1					
.046**	0.009	1				
.155**	.078**	.093**	1			
.075**	.047**	.076**	.056**	1		
.161**	.079**	.175**	.205**	.120**	1	
.135**	.064**	.103**	.123**	.155**	.318**	1
.322**	.150**	.063**	.188**	.093**	.200**	.167**
.379**	.157**	.091**	.122**	.095**	.226**	.200**
.194**	.210**	.047**	.103**	.075**	.126**	.151**
.050**	0.023	.235**	.077**	0.015	.141**	.063**
.124**	.053**	.095**	.280**	.058**	.155**	.093**
.056**	.046**	0.025	0.019	.213**	.084**	.107**
.128**	.079**	.114**	.150**	.092**	.306**	.200**
.078**	.079**	.068**	.090**	.092**	.177**	.205**
.291**	.169**	.042**	.111**	.096**	.143**	.150**
.320**	.190**	.033*	.077**	.116**	.128**	.133**
.143**	.177**	-0.003	.058**	.088**	.086**	.100**

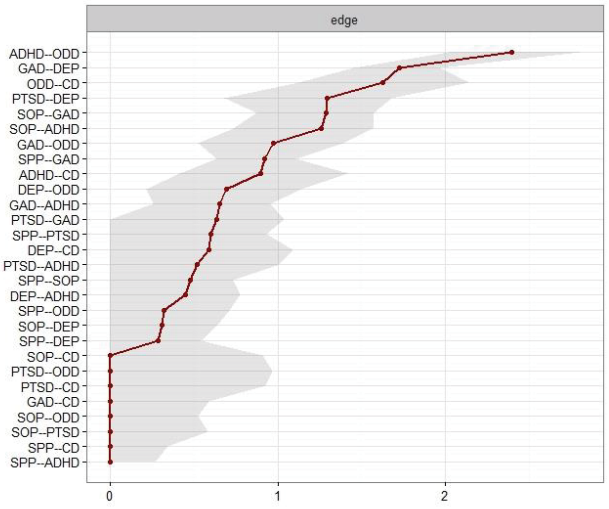
ADHD_10	ODD_10	CD_10	SPP_14	SOP_14	PTSD_14	GAD_14
1						
.387**	1					
.216**	.280**	1				
.041**	.051**	.035*	1			
.128**	.098**	.056**	.147**	1		
.073**	.073**	.069**	.046**	.110**	1	
.122**	.125**	.122**	.191**	.258**	.200**	1
.103**	.106**	.084**	.098**	.145**	.202**	.361**
.411**	.253**	.169**	.061**	.122**	.117**	.175**
.223**	.314**	.202**	.030*	.105**	.147**	.172**
.127**	.141**	.201**	0.013	.053**	.137**	.130**

DEP_14	ADHD_14	ODD_14	CD_14
1			
.203**	1		
.223**	.464**	1	
.165**	.231**	.335**	1

Age 7



Age 10.5



Age 14

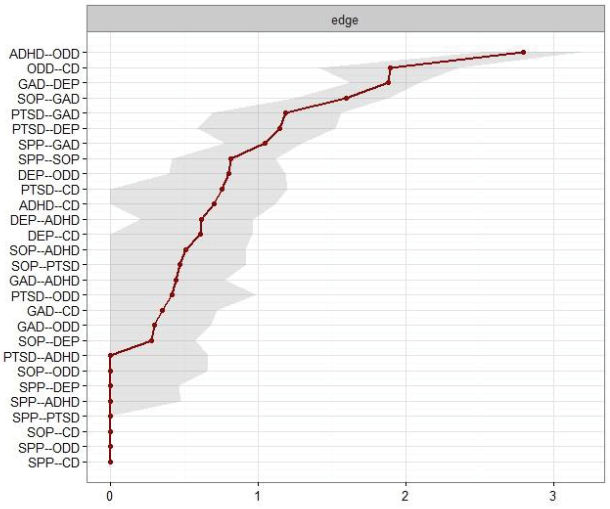


Fig S1. Bootstrapped edge weights

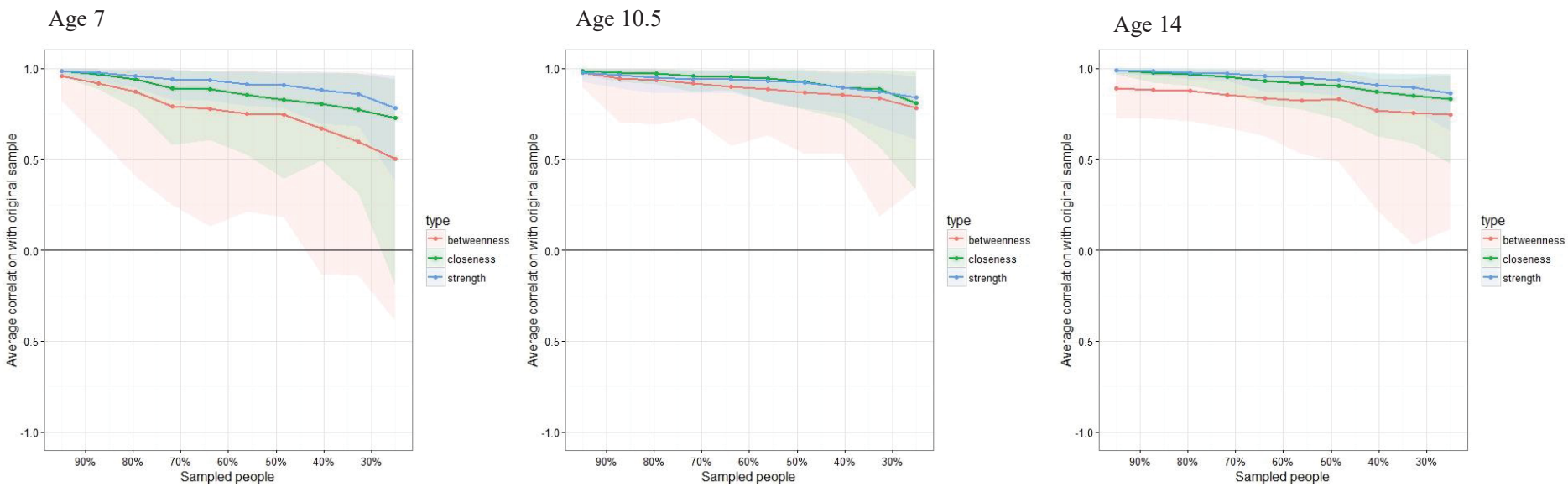


Fig S2. Average correlations between centrality indices in original sample and subsets

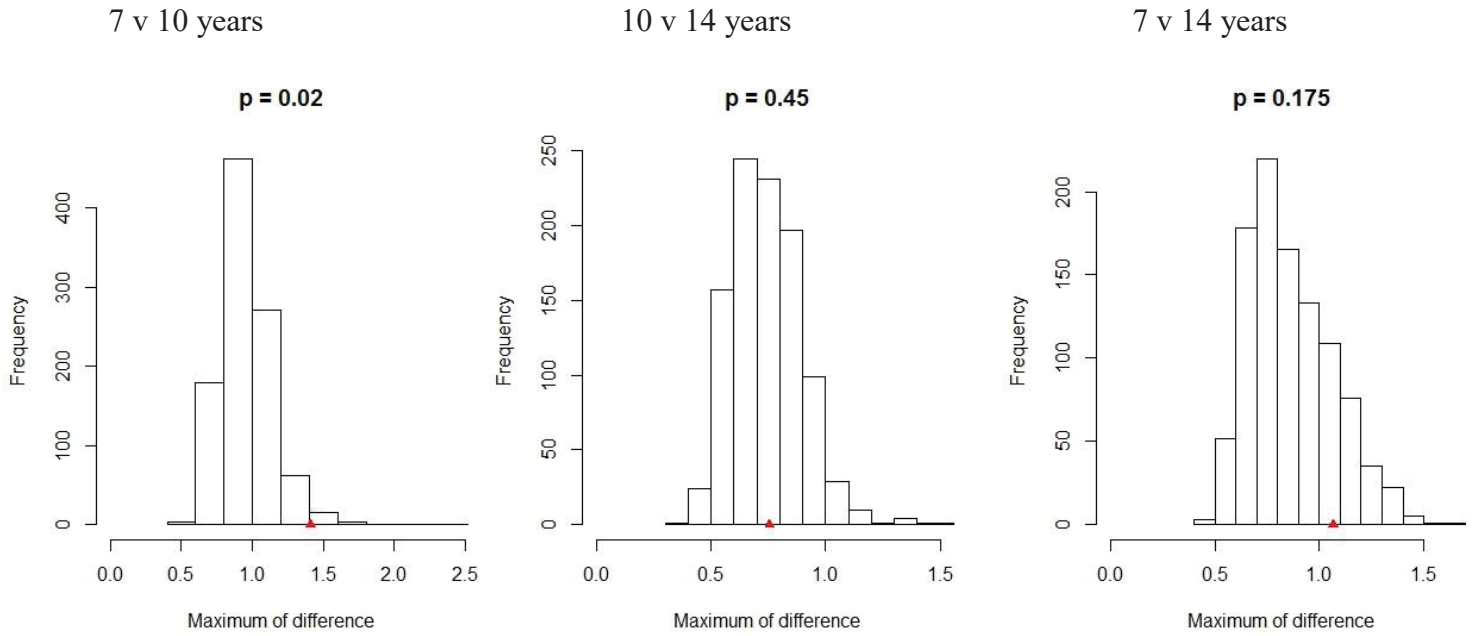


Fig S3. Results from non-parametric permutation test. Following Bonferroni adjustment, α value for statistical significance set at 0.016.