

Supplementary Table 1

a.

$\gamma=0.25$	Δ_{QIDS}	Sample Size
	1	164
	2	205
	3	198
	4	245
	5	225
	6	230
	7	197
	8	163
	9	164
	10	119

b.

$\gamma=0.25$	Distance value	Sample Size
	0.25	344
	0.50	233
	0.75	312
	1.00	256
	1.25	182
	1.50	191
	1.75	155
	2.00	104

Table S1. Sample sizes in the following correlations: **a.** correlation of connectivity strength calculated with regularization (γ , 0.25) and improvement (i.e., |QIDS-C₁₆ score at week 4 - QIDS-C₁₆ score at baseline (Figure 3); **b.** correlation of connectivity strength calculated with regularization (γ , 0.25) and the match subjective appraisal (Figure 4).

Supplementary Figure 1

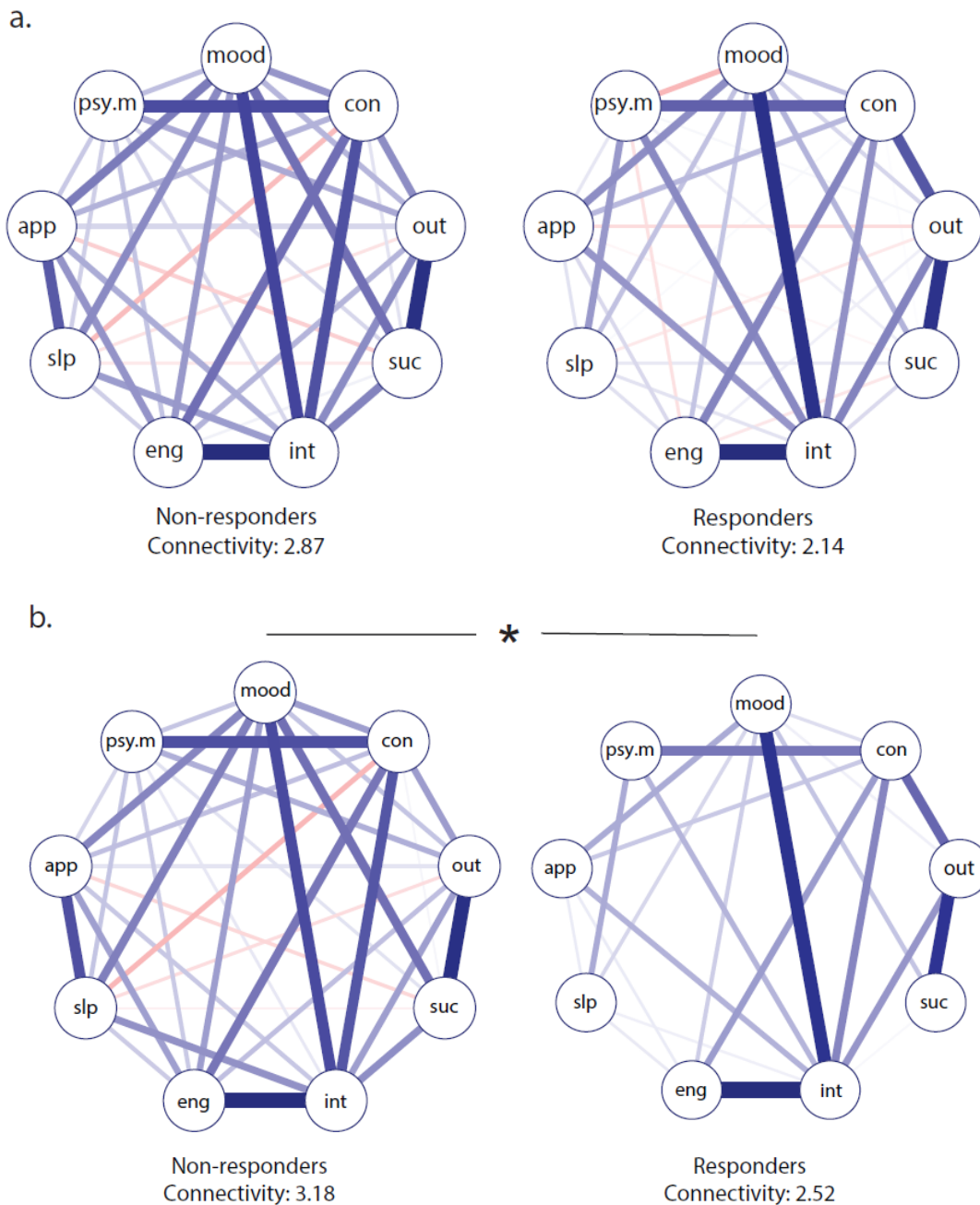


Figure S1. a. Non regularized and **b.** regularized (γ , 0.5) network structures of non-responders ($n = 1,907$) and responders ($n = 637$) at baseline. Blue connections represent positive associations, whereas red connections represent negative associations. Thicker edges represent stronger associations (positive or negative). psy.m, psychomotor agitation; con, concentration/decision making; mood, depressed mood; engy, fatigue or loss of energy; slp, sleeping problem (sleep onset insomnia, mid, early and hypersomnia); out self-outlook; sui, suicidal ideation; app, weight/appetite change. *p-value of Network comparison test (NTC) < 0.05.

Supplementary Figure 2

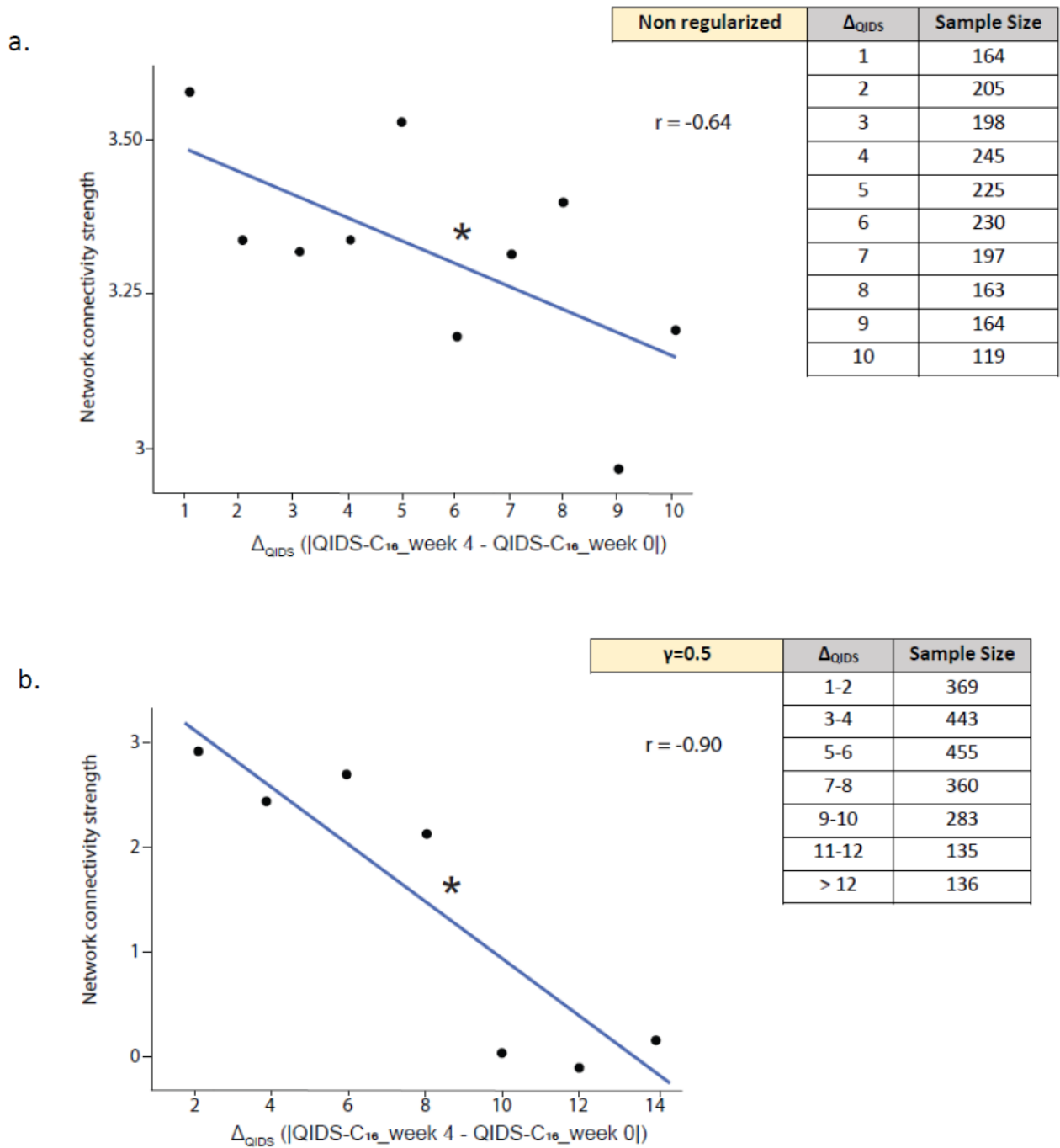


Figure S2. Correlation between improvement measured with Δ_{QIDS} (i.e., $|QIDS-C16\text{ score at week }4 - QIDS-C16\text{ score at week }0|$) and connectivity strength calculated **a.** without regularization and **b.** with regularization ($\gamma, 0.5$) and the relative sample sizes. *p-value of Pearson's correlation < 0.05 .

Supplementary Figure 3

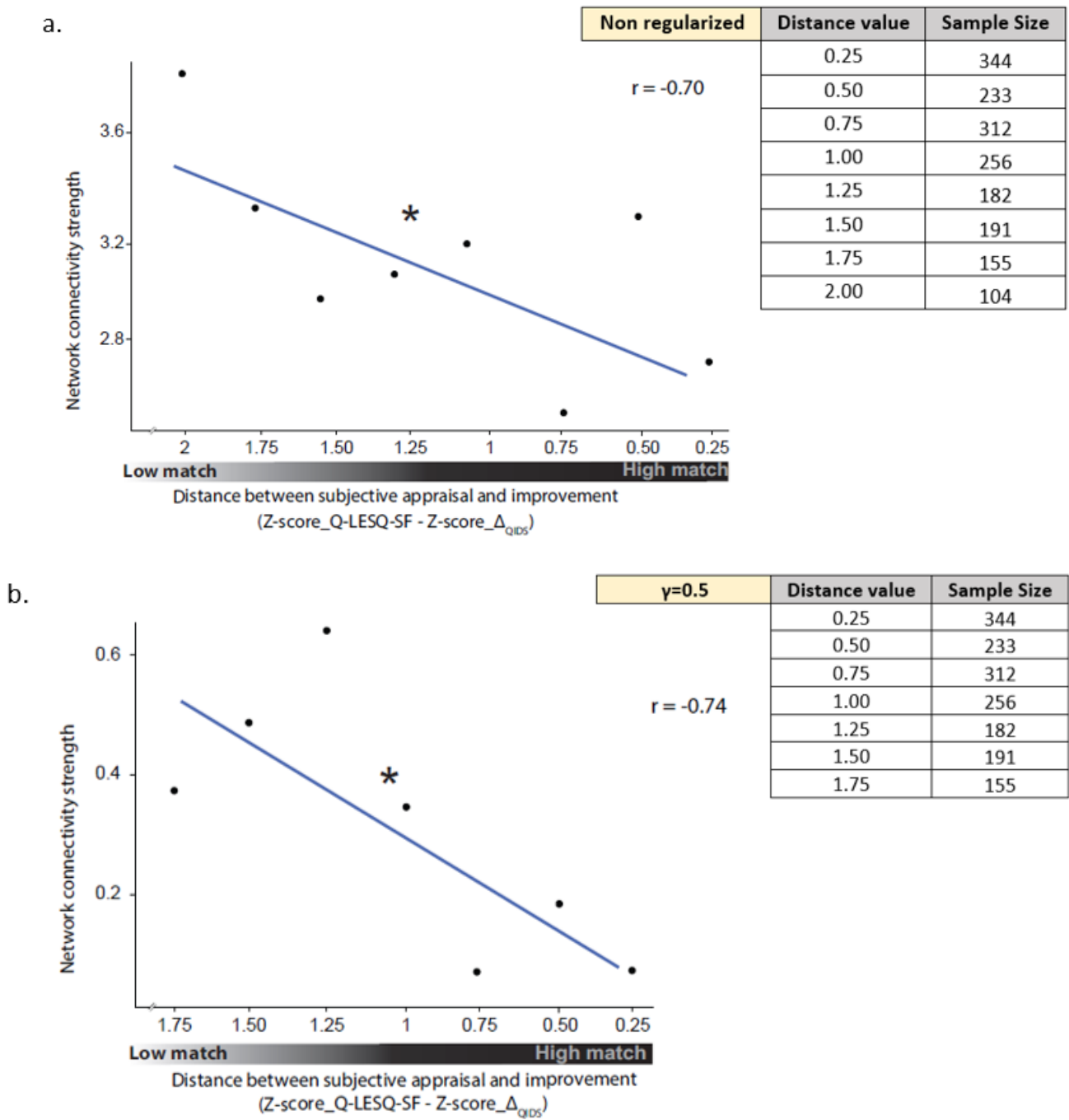


Figure S3. Correlation of the distance between subjective appraisal and improvement and connectivity strength calculated **a.** without regularization and **b.** with regularization (γ , 0.5) and the relative sample sizes. *p-value of Pearson's correlation = 0.05.

Supplementary Figure 4

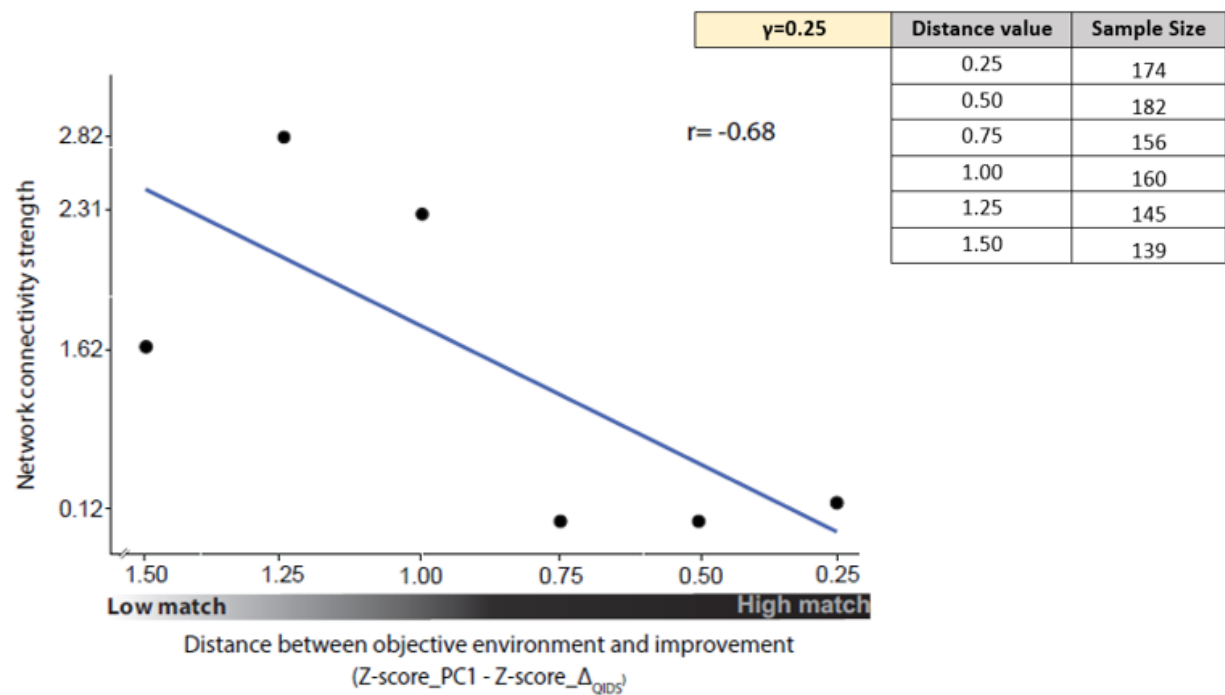


Figure S4. Correlation of the connectivity strength calculated with regularization (γ , 0.5) and the distance between the improvement and the objective quality of the environment.

Supplementary Figure 5

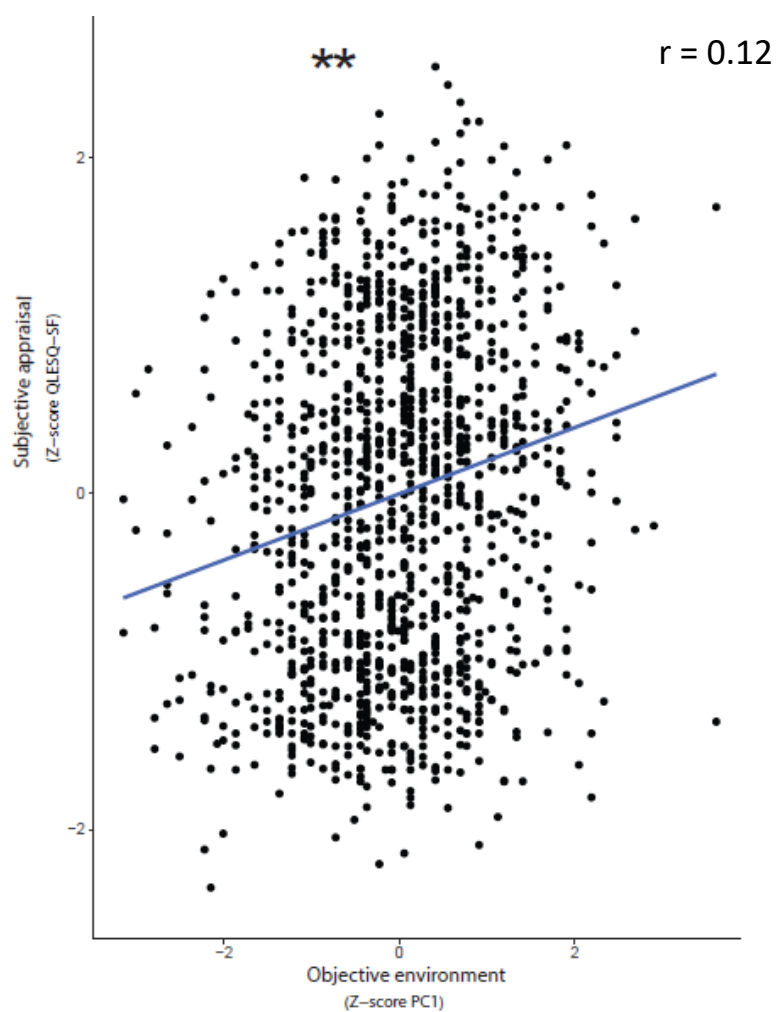


Figure S5. Correlation of the objective quality of the living environment and the subjective appraisal. **p-value of Pearson's correlation < 0.01.