

Taking a Symptom-Level Approach to Depression Treatment Efficacy

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Thank you!



Overview

- Why use network analysis to examine treatment efficacy?
- What does this approach look like in practice?
- What are potential future applications?

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**DEPRESSION IS A HETEROGENEOUS
SYNDROME**

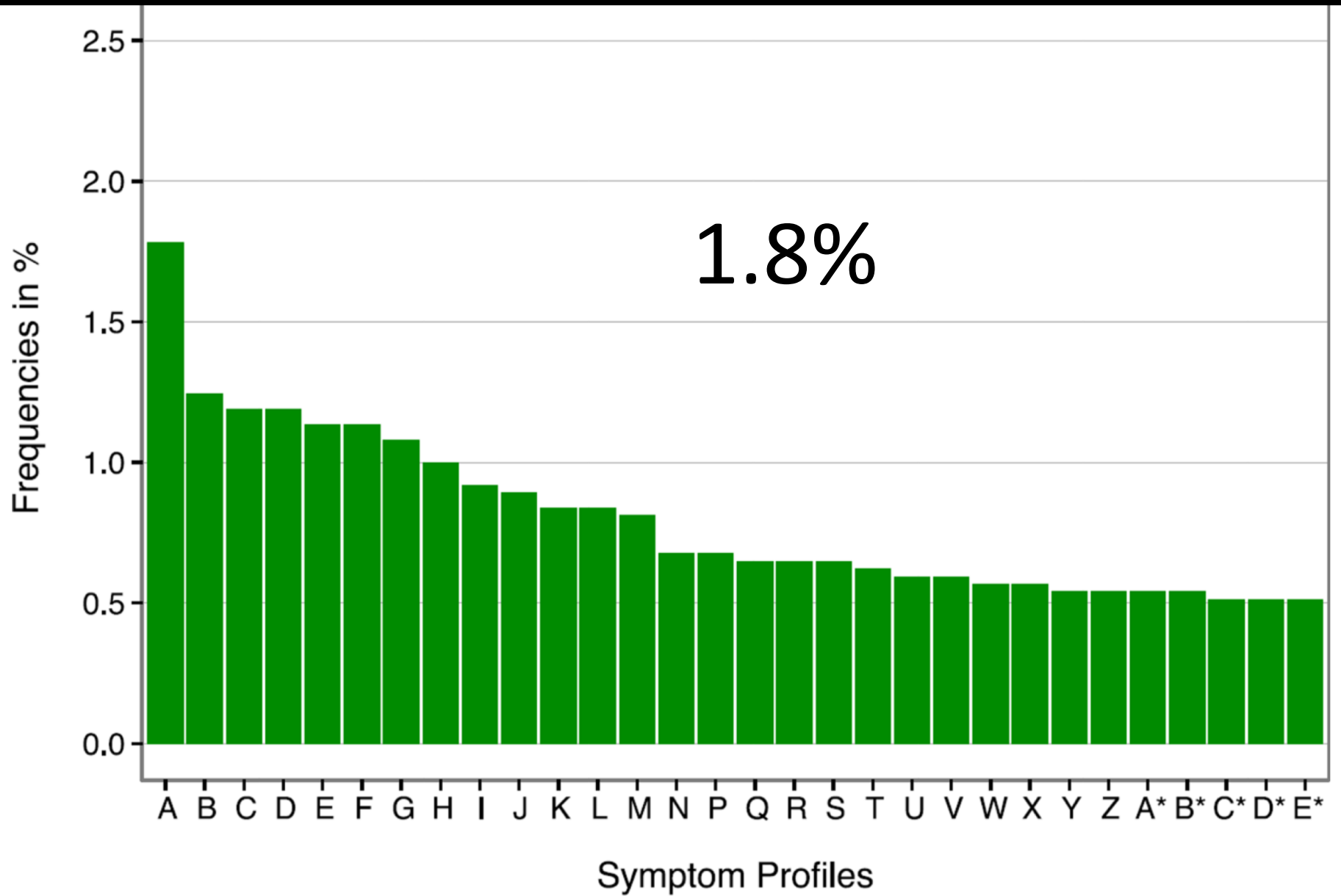


Figure 1.

Frequencies of the 30 most common depression symptom profiles during the beginning of the first treatment stage of the STAR*D study ($n = 3,703$).

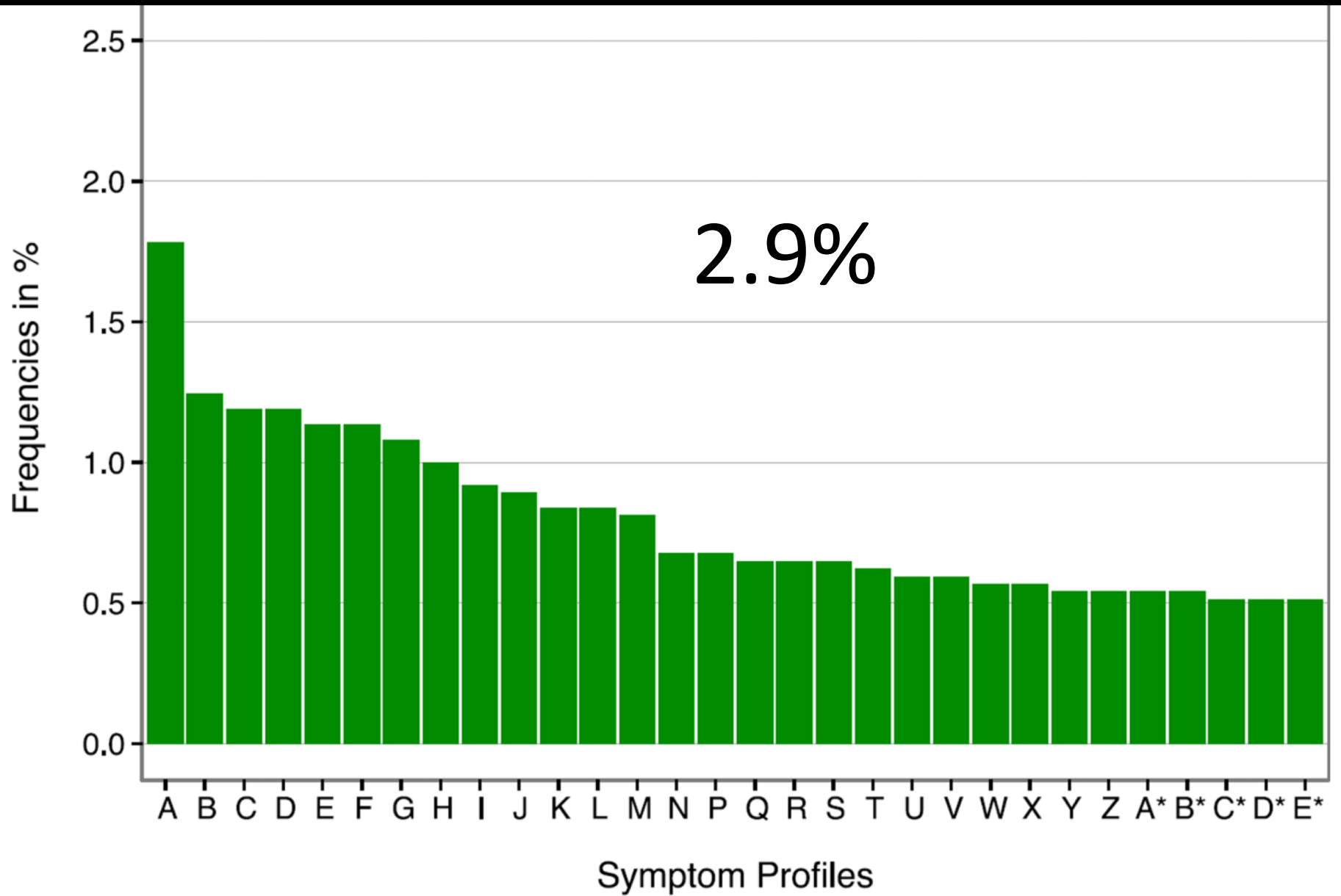


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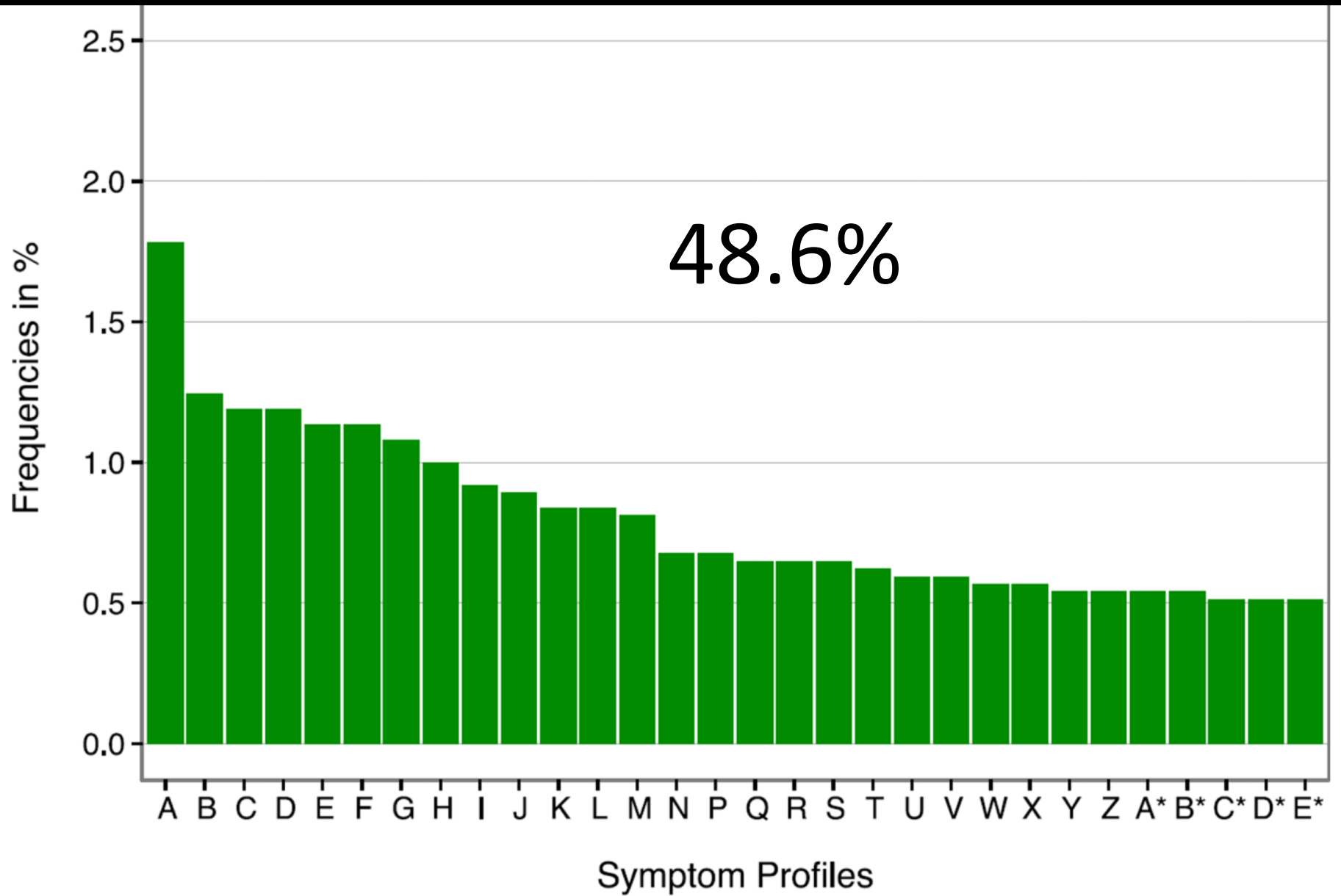
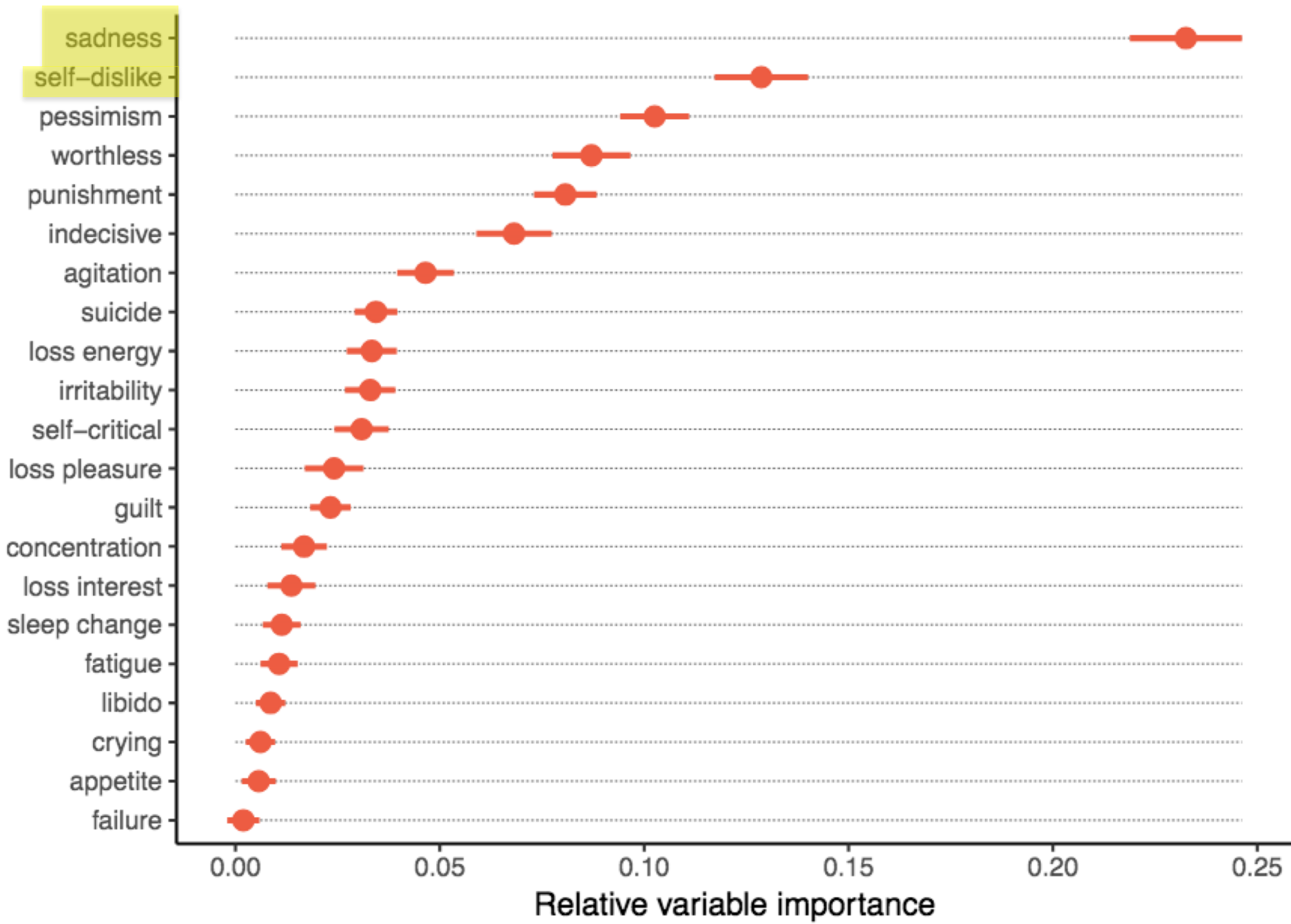
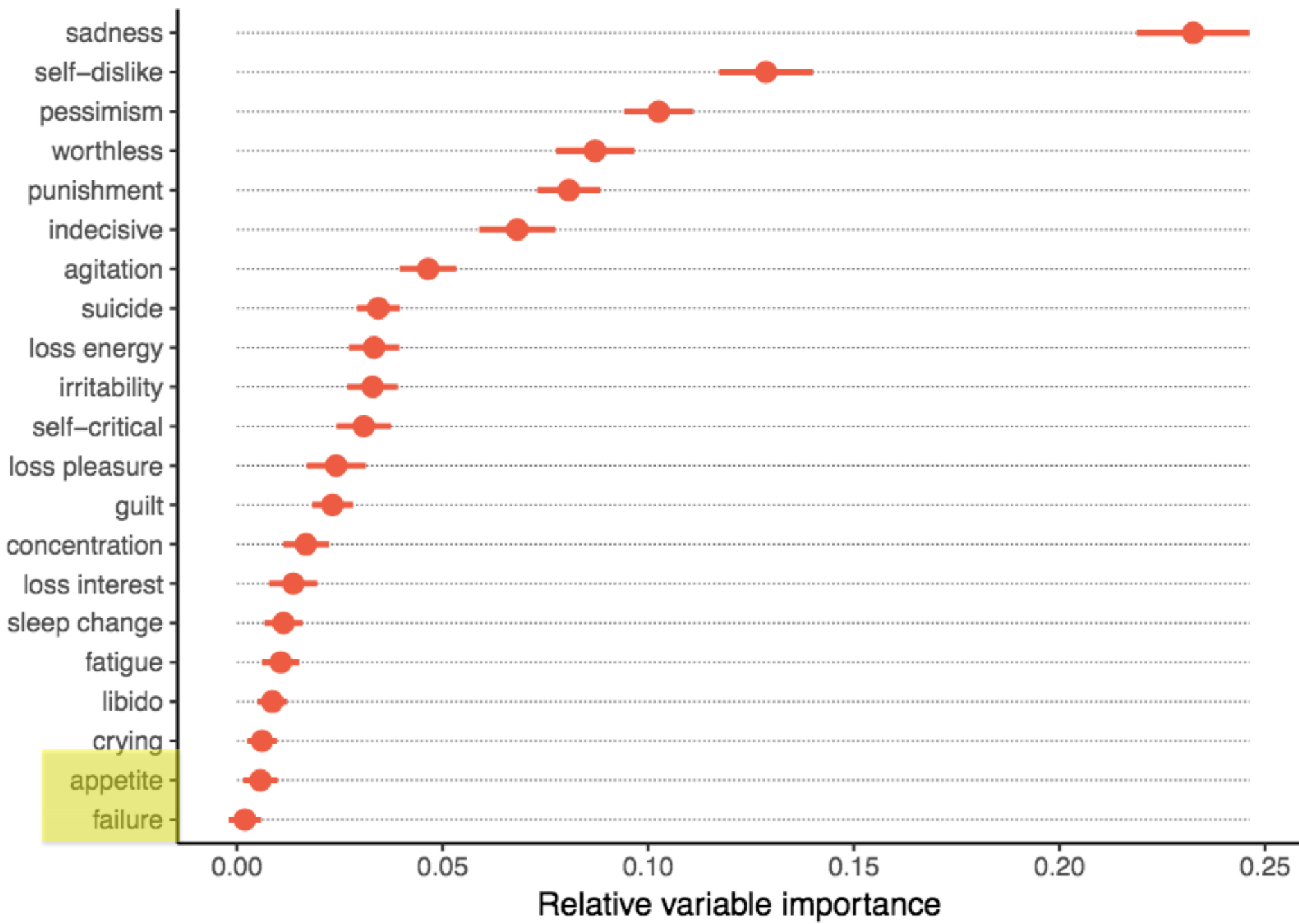


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Frequencies of the 30 most common depression symptom profiles during the beginning of the first treatment stage of the STAR*D study ($n = 3,703$).

**DIFFERENT SYMPTOMS RELATE
DIFFERENTIALLY TO RISK FACTORS**





**DEPRESSION SUM SCORES DON'T
MEASURE THE SAME THING OVER TIME**

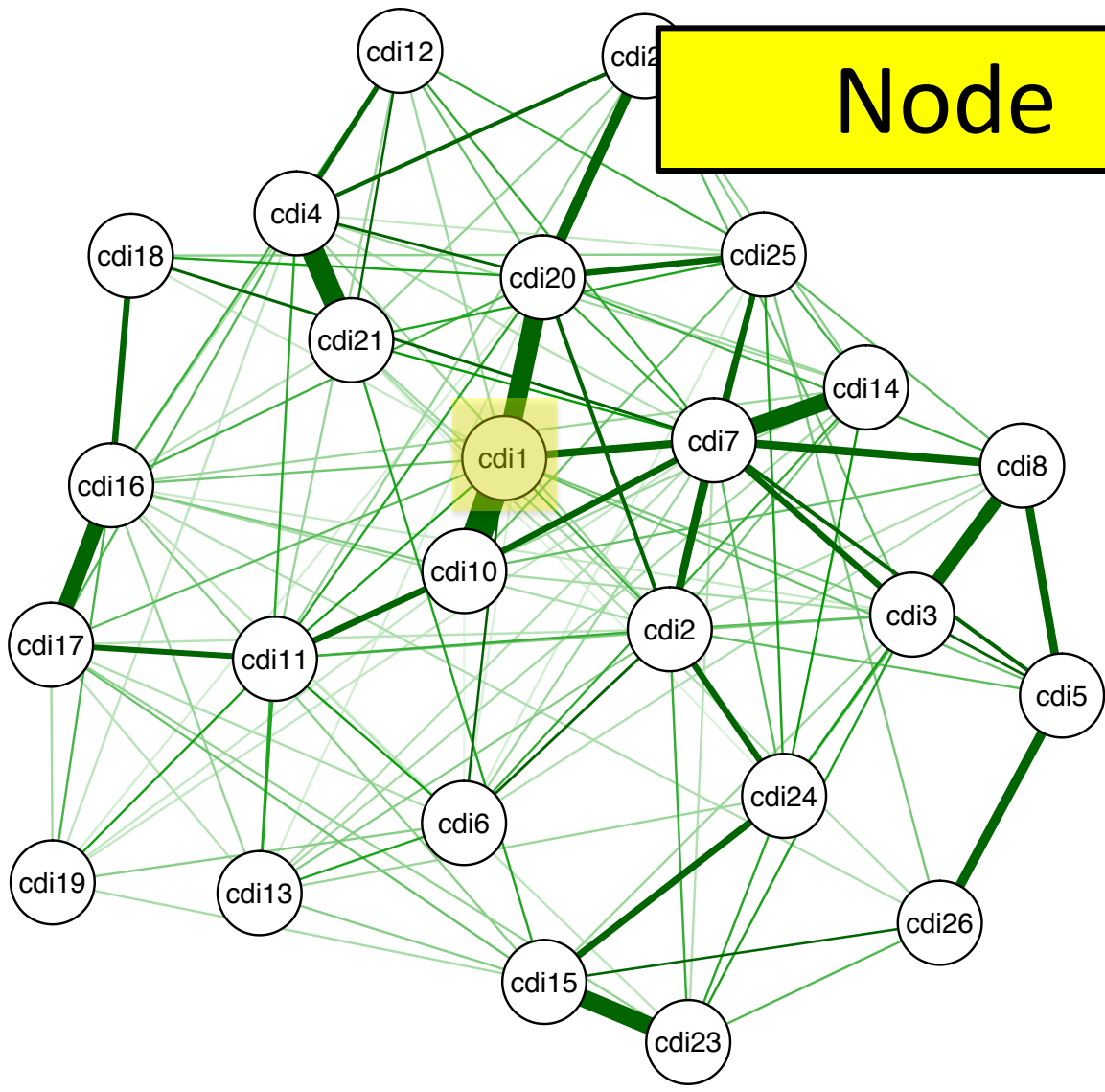
measurement invariance. We investigated these 2 requirements in 2 large prospective studies (combined $n = 3,509$) in which overall depression levels decrease, examining 4 common depression rating scales (1 self-report, 3 clinician-report) with different time intervals between assessments (between 6 weeks and 2 years). A consistent pattern of results emerged. For all instruments, neither unidimensionality nor measurement invariance appeared remotely tenable. At least 3 factors were required to describe each scale, and the factor structure changed over time. Typically, the structure became less multifactorial as

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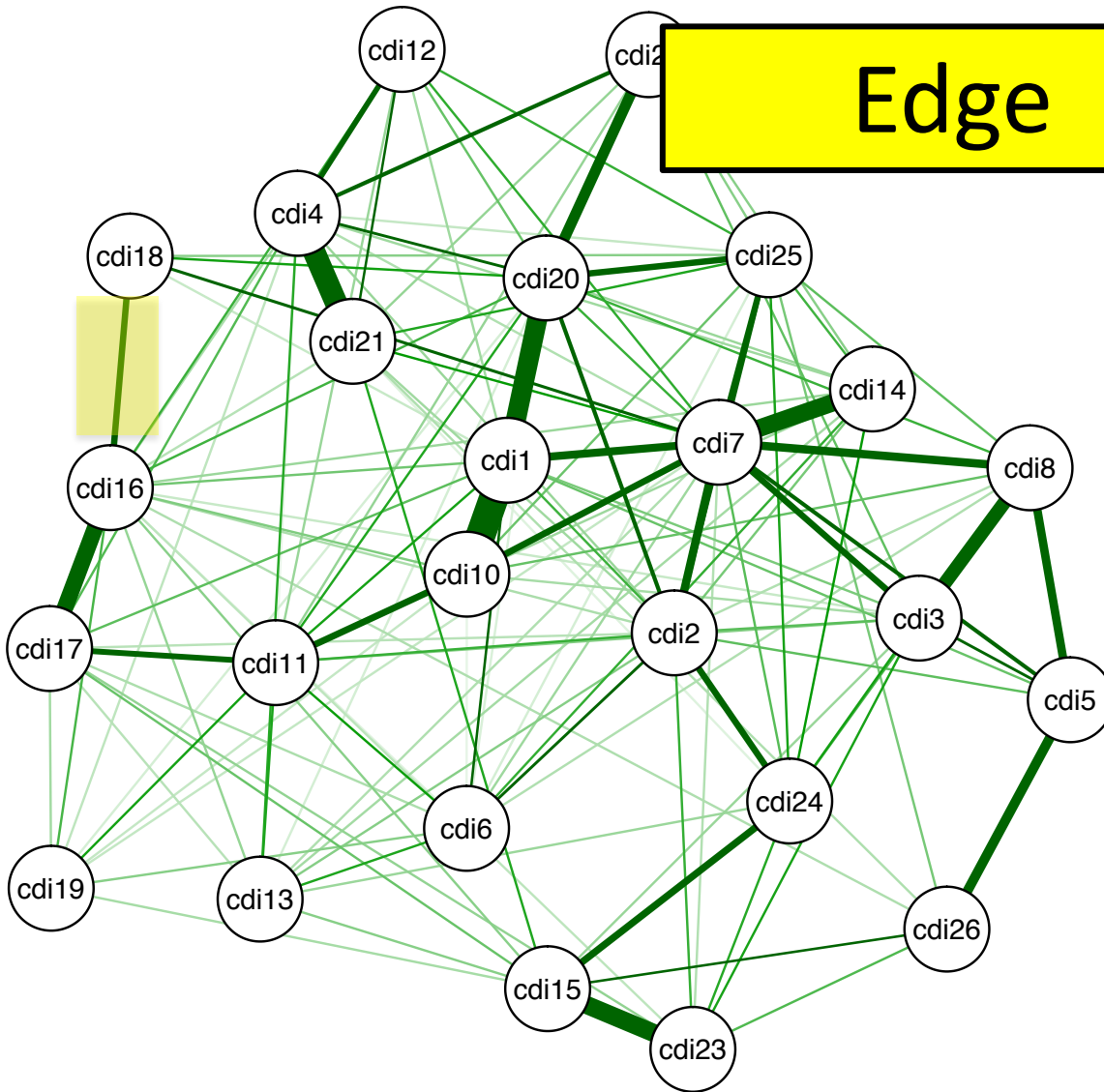
**TO TAKE A SYMPTOM LEVEL APPROACH
TO TREATMENT EVALUATION**

Node



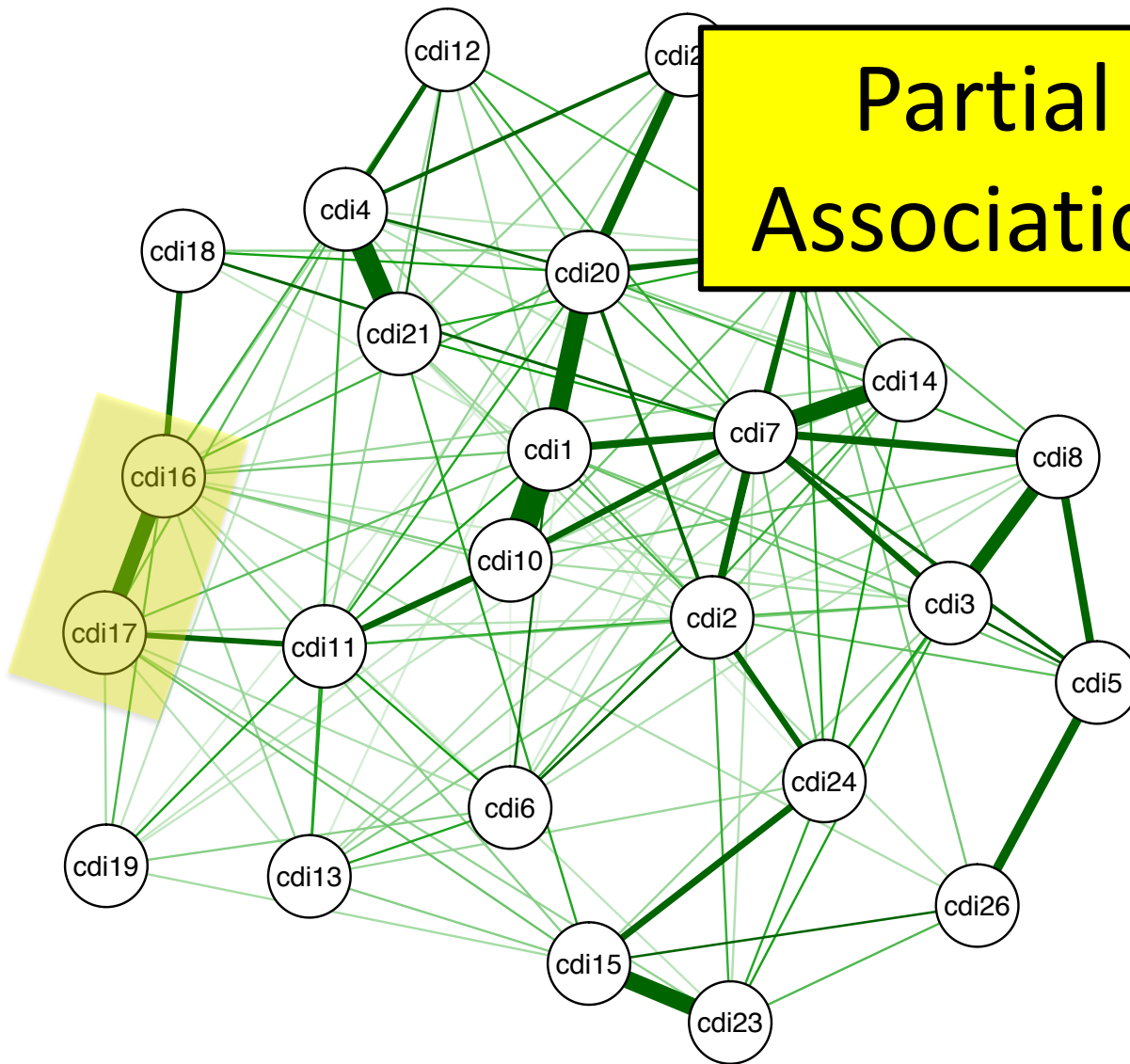
- cdi1: Sadness
- cdi2: Pessimism
- cdi3: Self-deprecation
- cdi4: Anhedonia
- cdi5: Misbehavior
- cdi6: Pessimistic worrying
- cdi7: Self-hatred
- cdi8: Self-blame
- cdi10: Crying
- cdi11: Irritability
- cdi12: Social withdrawal
- cdi13: Indecisiveness
- cdi14: Negative body image
- cdi15: School work difficulty
- cdi16: Sleep disturbance
- cdi17: Fatigue
- cdi18: Reduced appetite
- cdi19: Somatic concerns
- cdi20: Loneliness
- cdi21: School dislike
- cdi22: Lack of friendship
- cdi23: School performance decrement
- cdi24: Low self-esteem
- cdi25: Feeling unloved
- cdi26: Disobedience

Edge

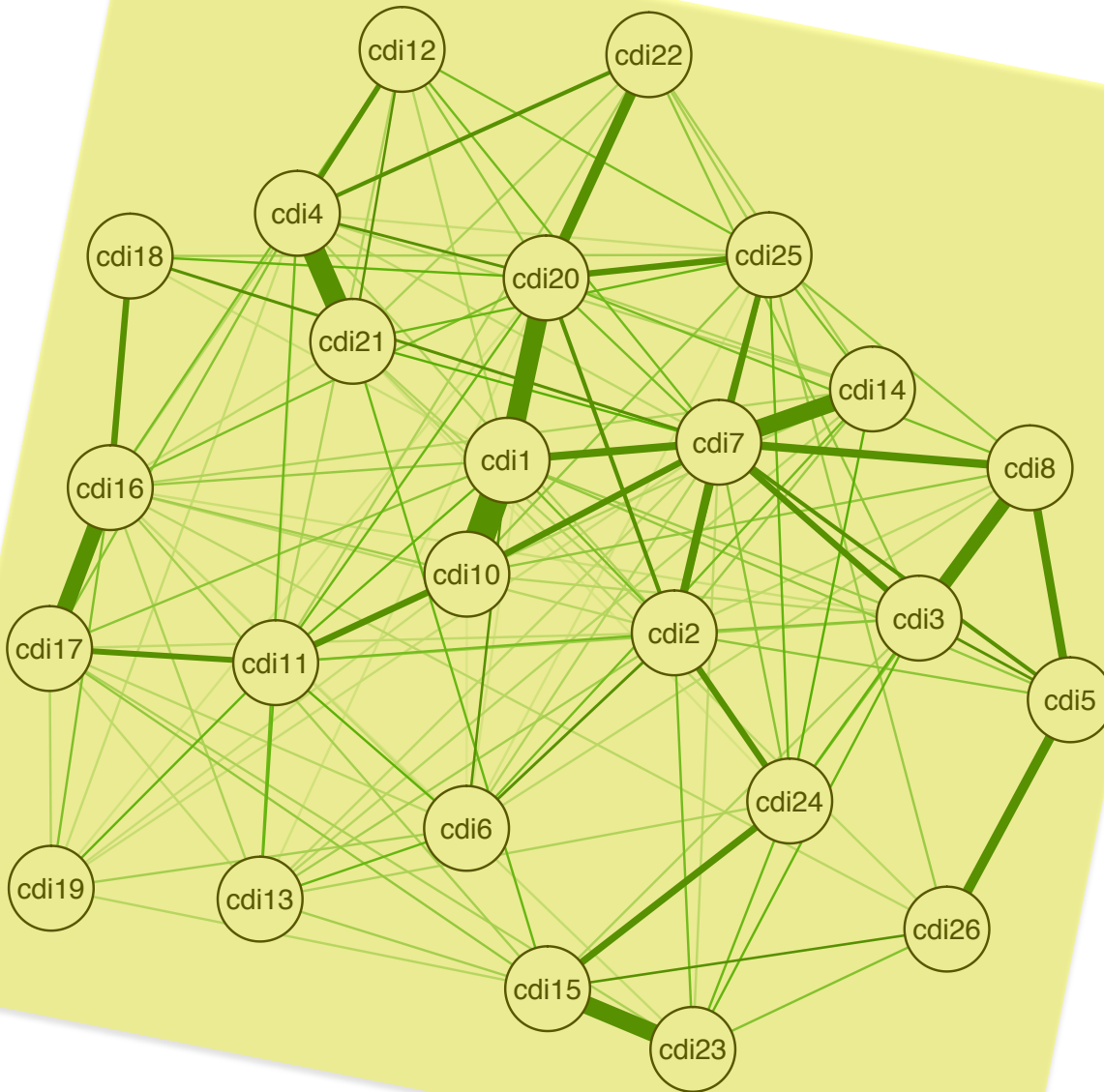


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Partial Association

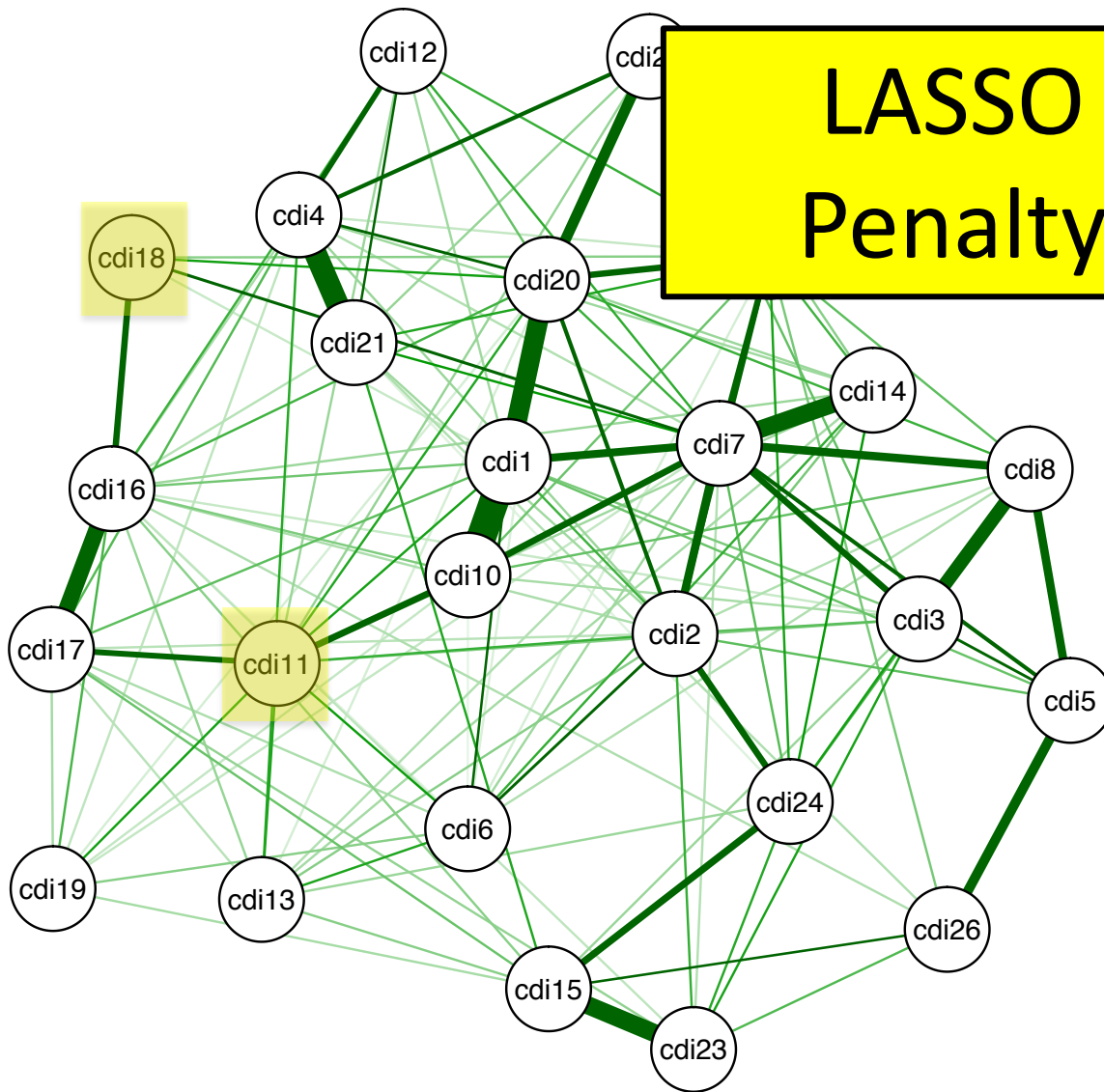


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LASSO Penalty



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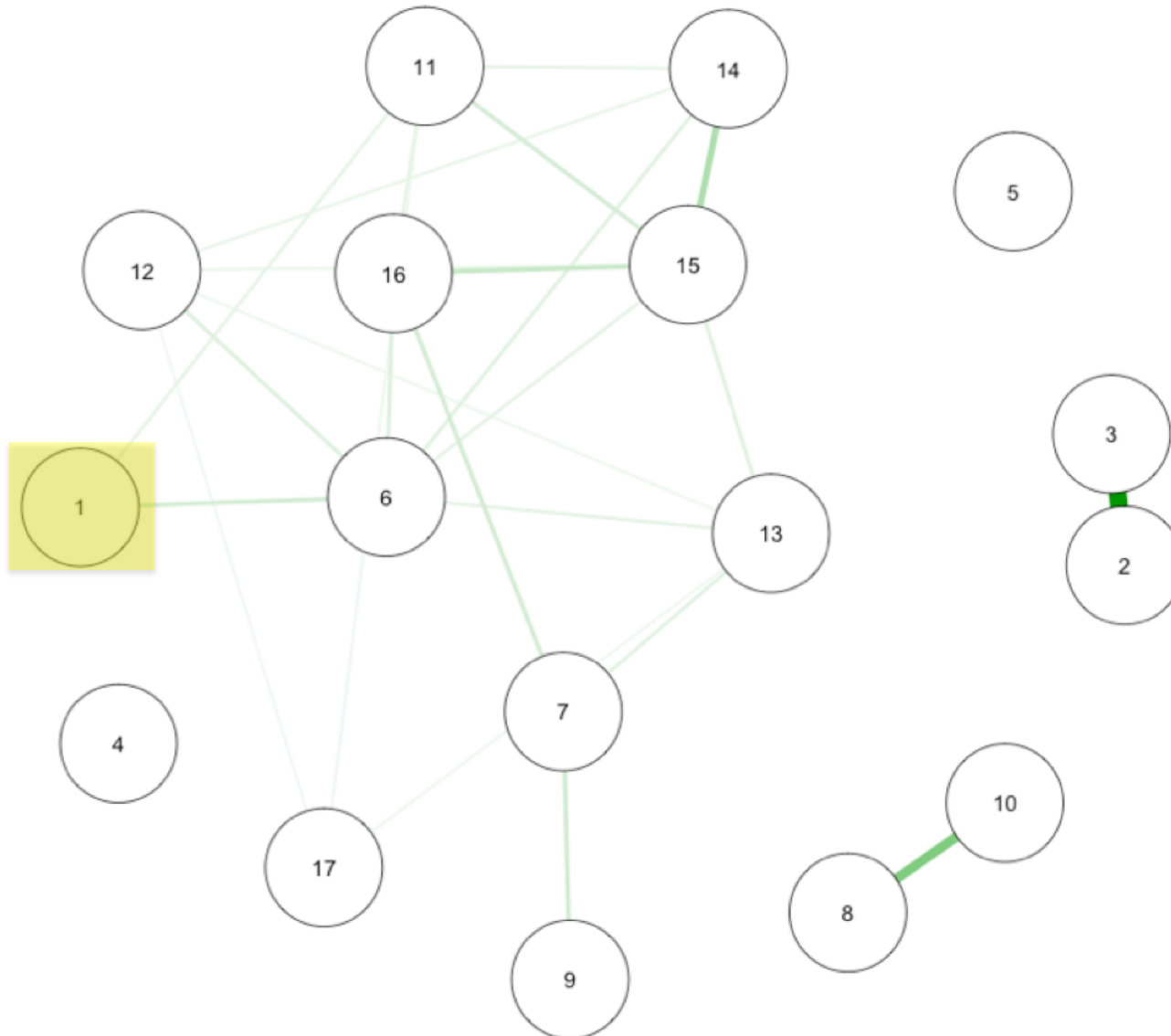
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**ADD TREATMENT TO THE NETWORK
AND LOOK AT SYMPTOM CHANGE**

Effectiveness of an Internet Intervention (Deprexis) for Depression in a United States Adult Sample: A Parallel-Group Pragmatic Randomized Controlled Trial

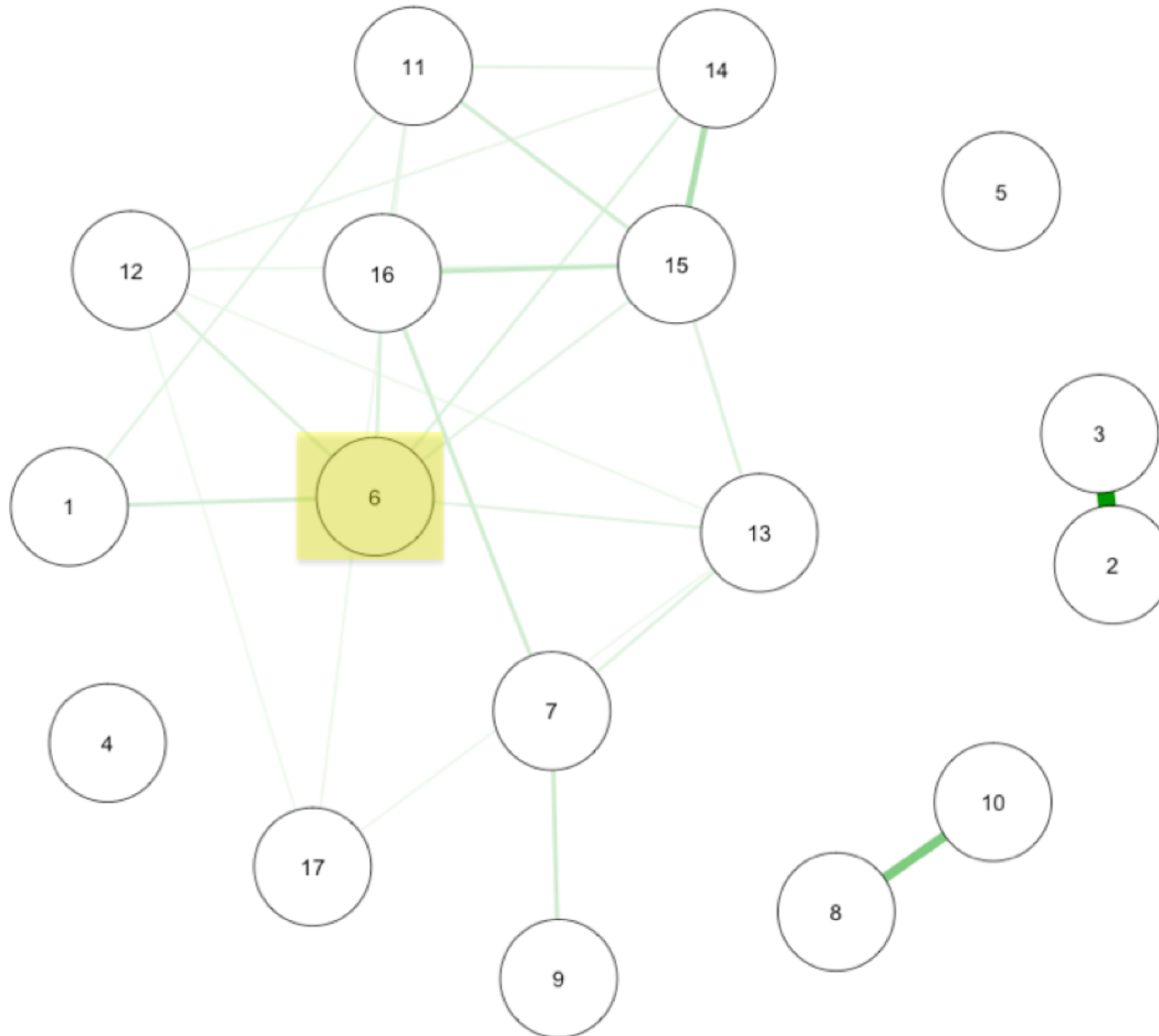
Christopher G. Beevers, Rahel Pearson,
James S. Hoffman, A. Alban Foulser,
and Jason Shumake
University of Texas at Austin

Björn Meyer
Gaia AG, Hamburg, Germany and City, University of London



1: Treatment

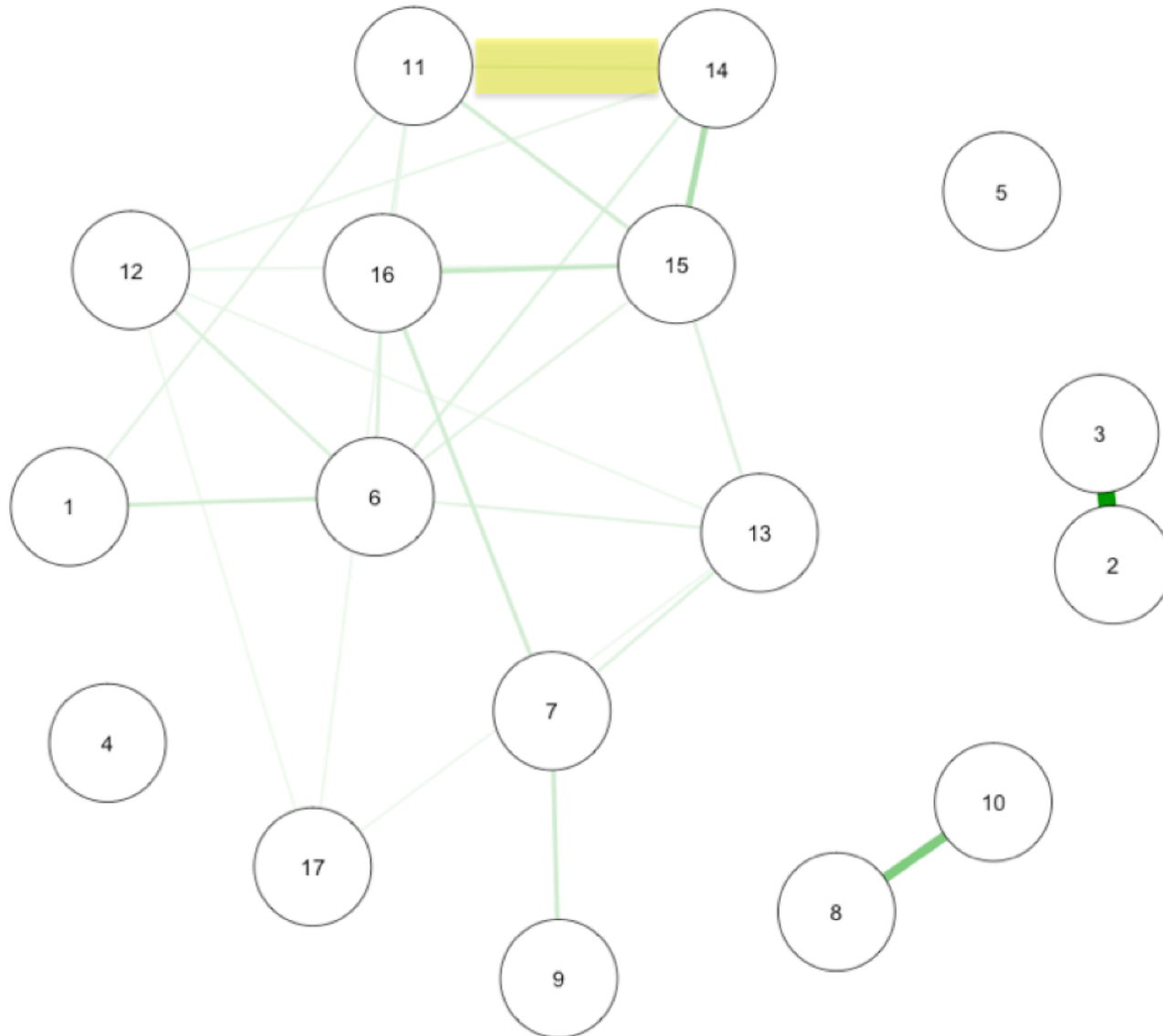
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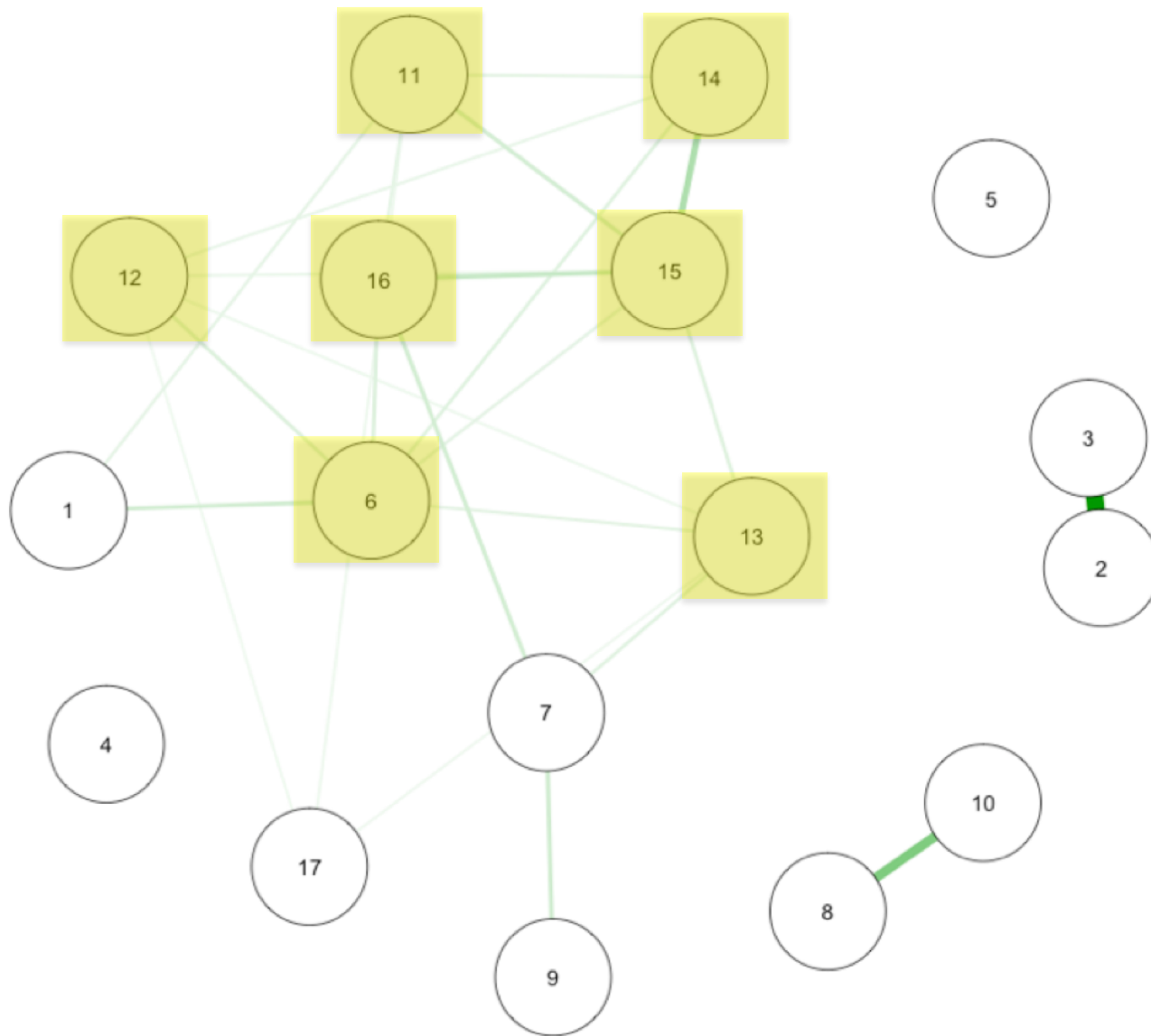
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Intention-to-Treat

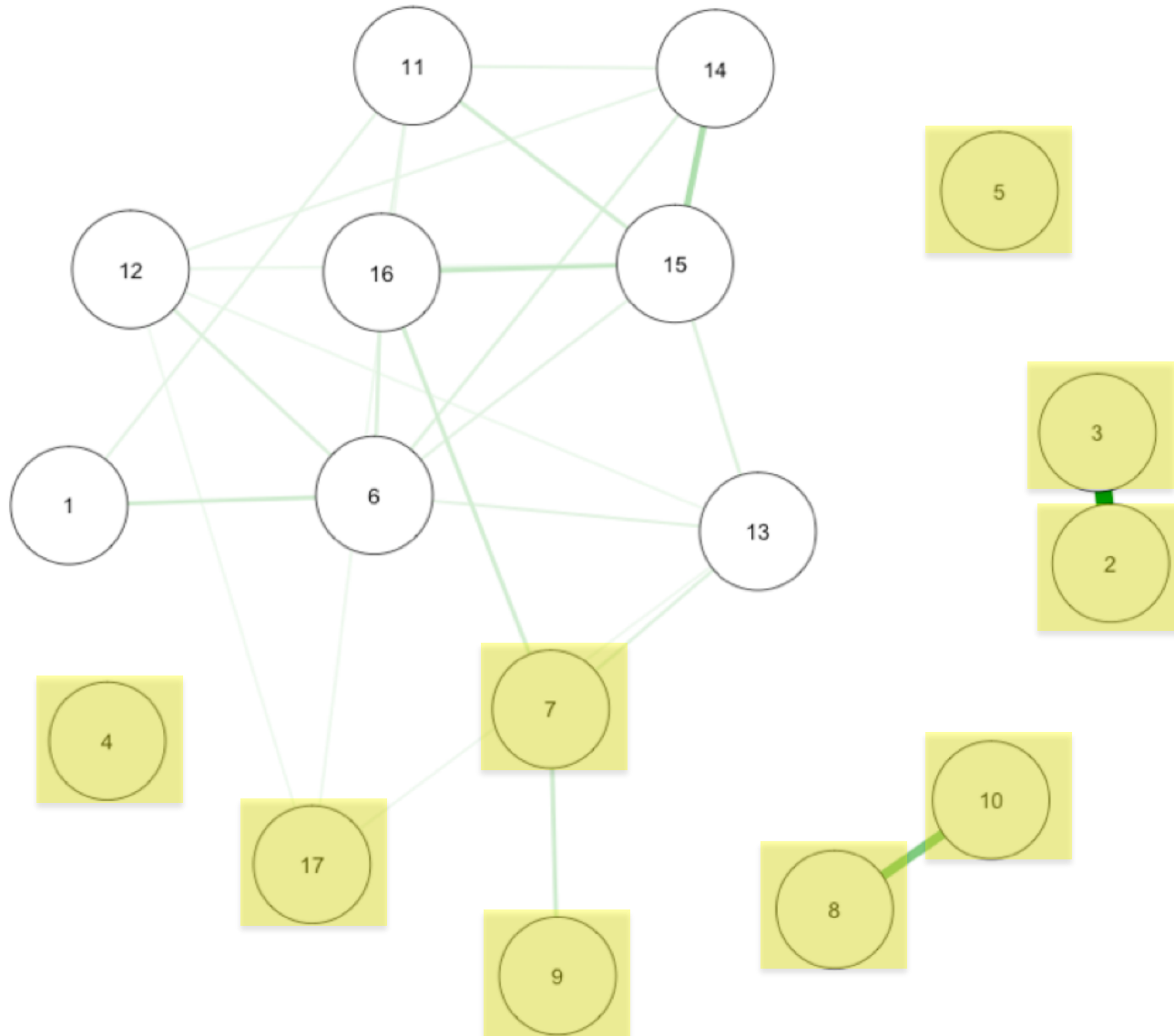
Primary outcome. All intention-to-treat analyses involved the imputed data sets as described in statistical analysis section. Using pretreatment QIDS-SR as a covariate in a linear regression, results indicated a significant treatment group difference for postassessment QIDS-SR, $b = -3.87$, $SE = 0.53$, $z = -7.22$, $p < .001$, Cohen's $d = 0.80$, 95% CI [.56, 1.04]). The treatment condition experienced significantly lower self-reported depression symptoms at posttreatment compared with the waitlist condition (see [Figure 2](#)).



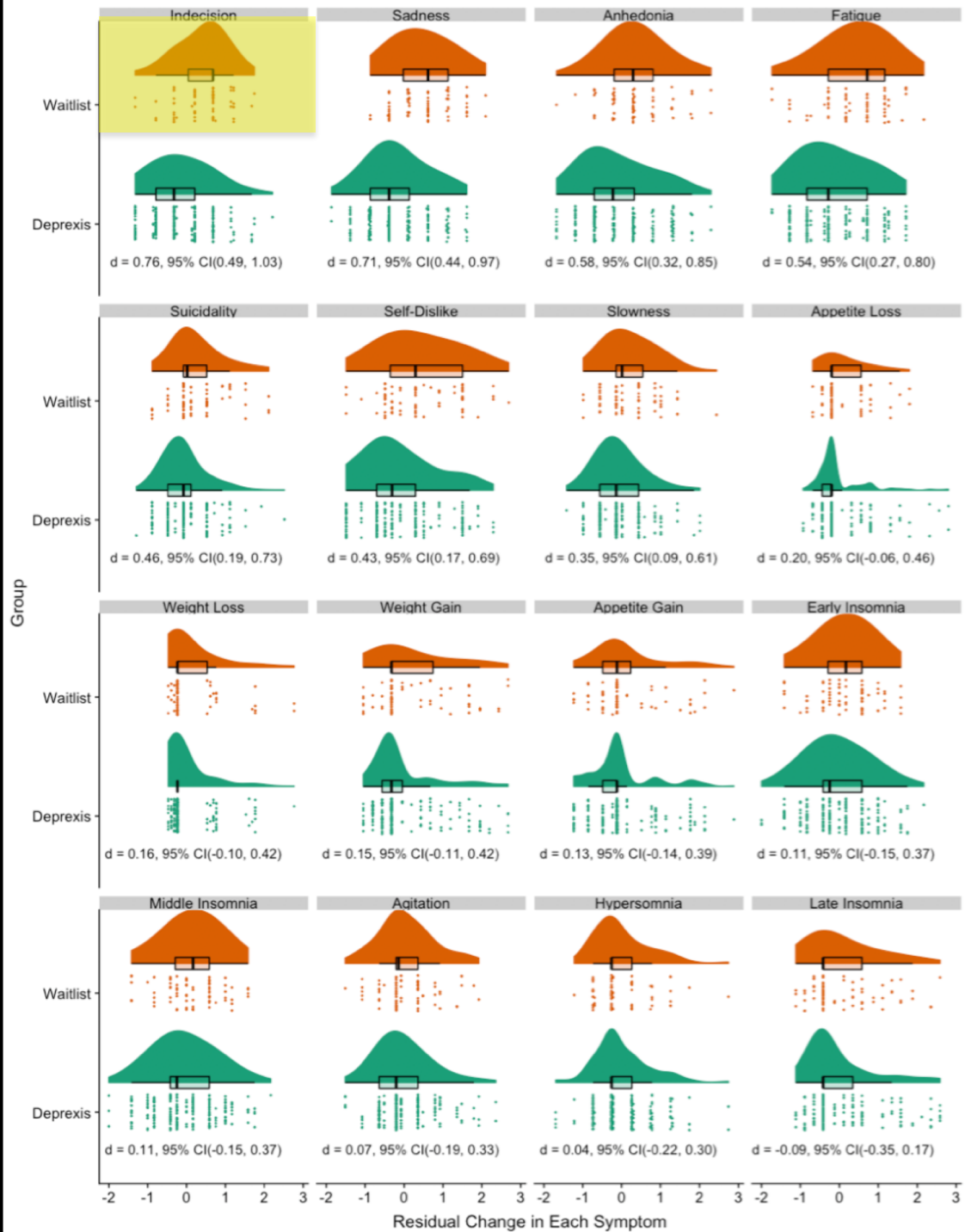
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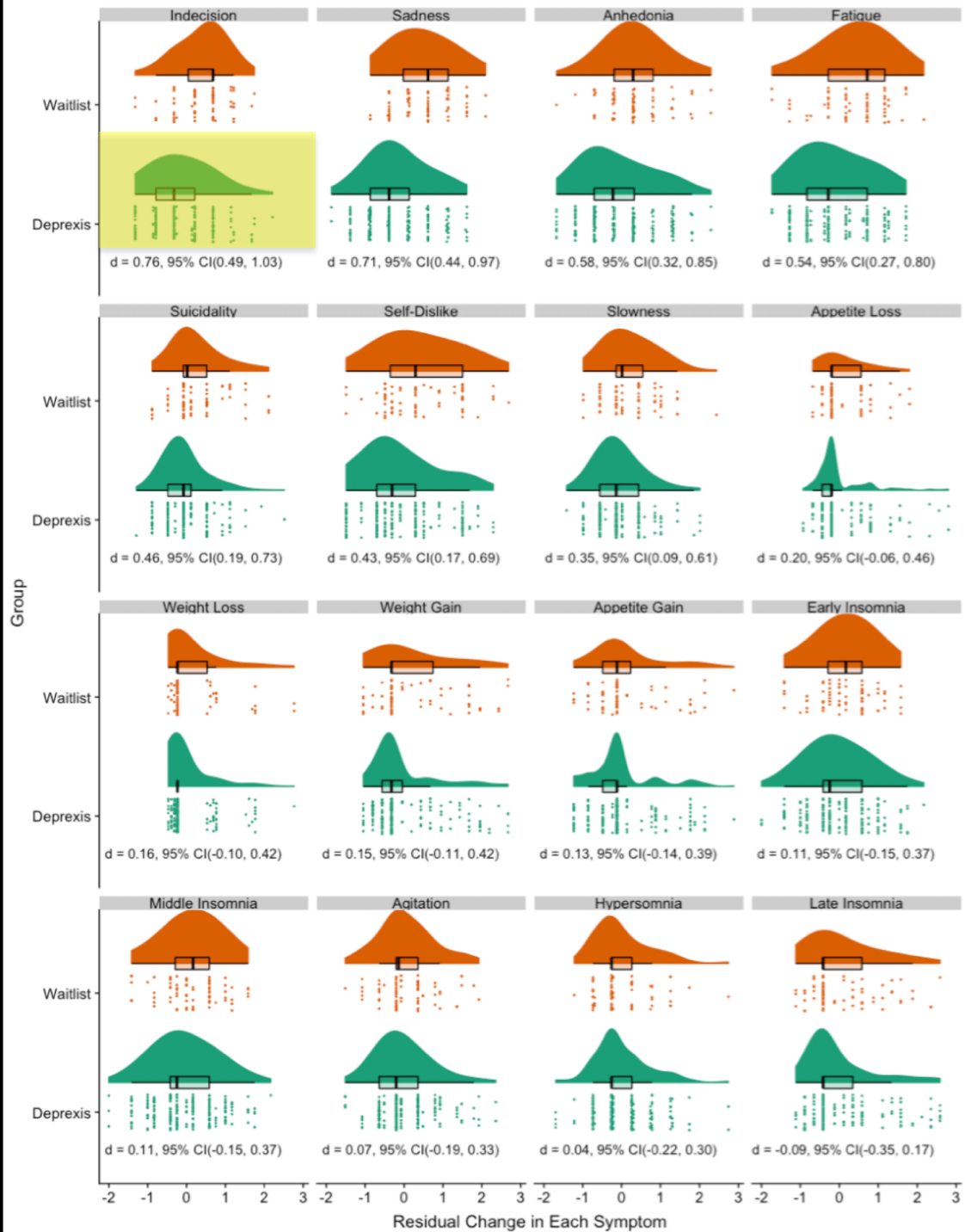


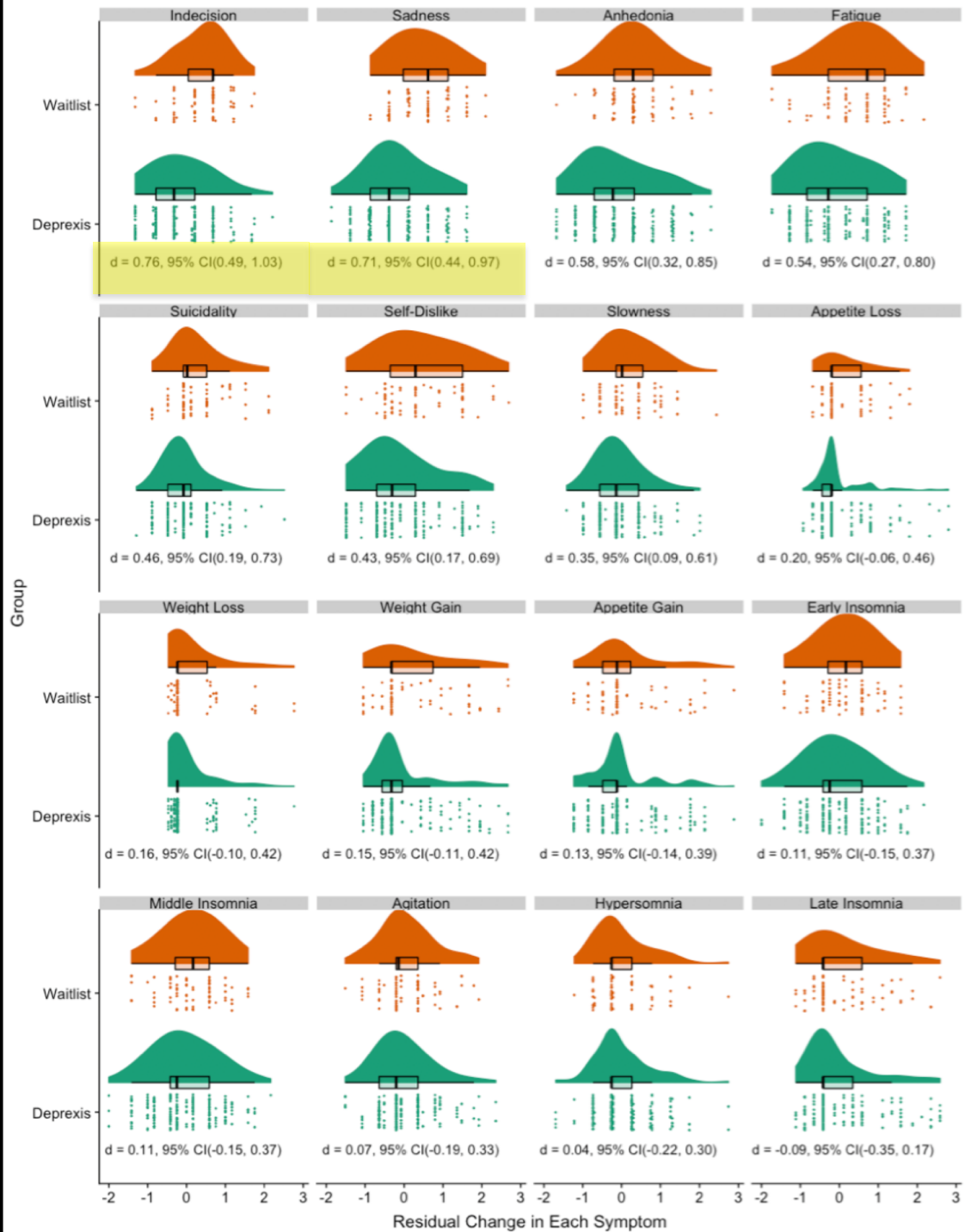
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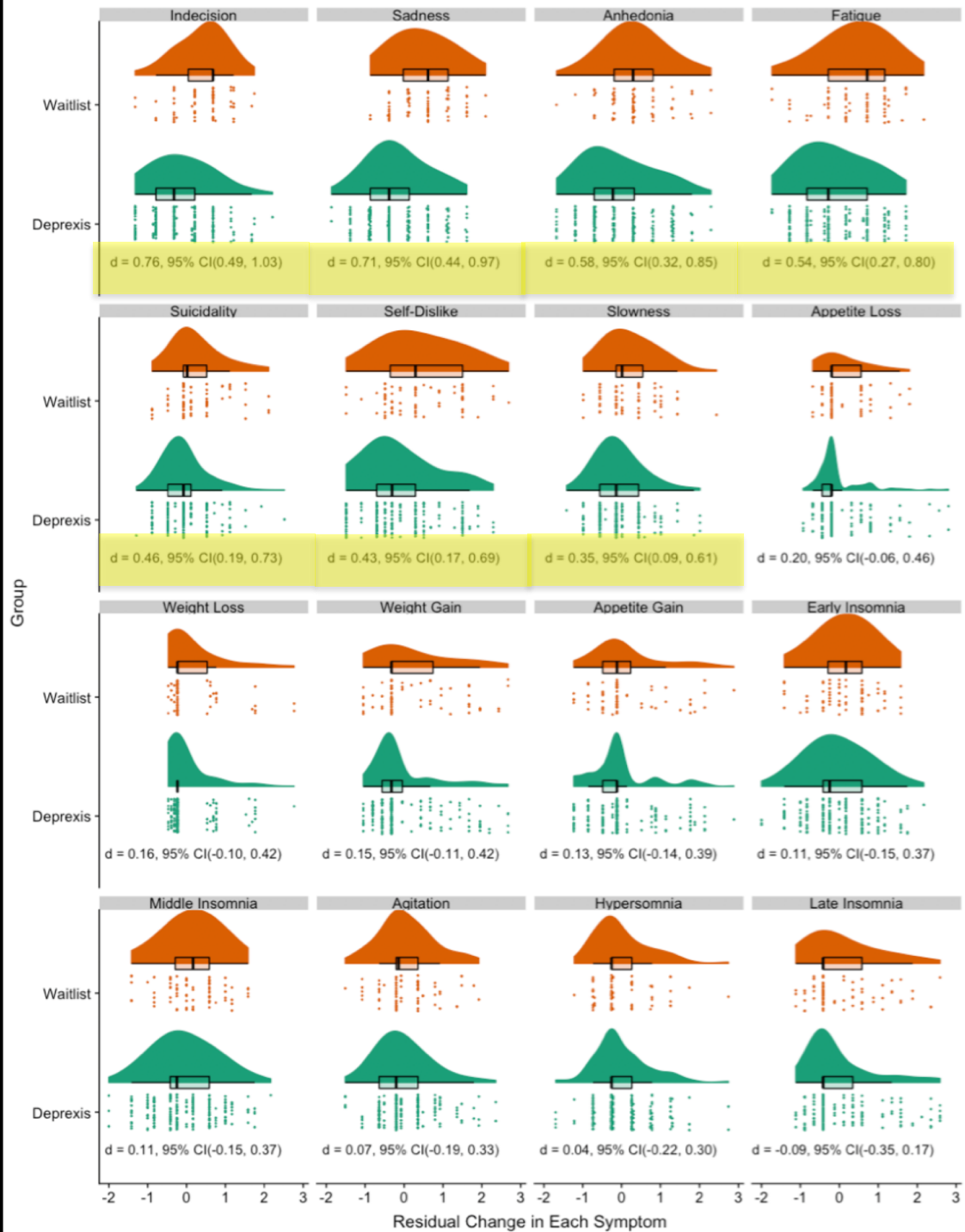


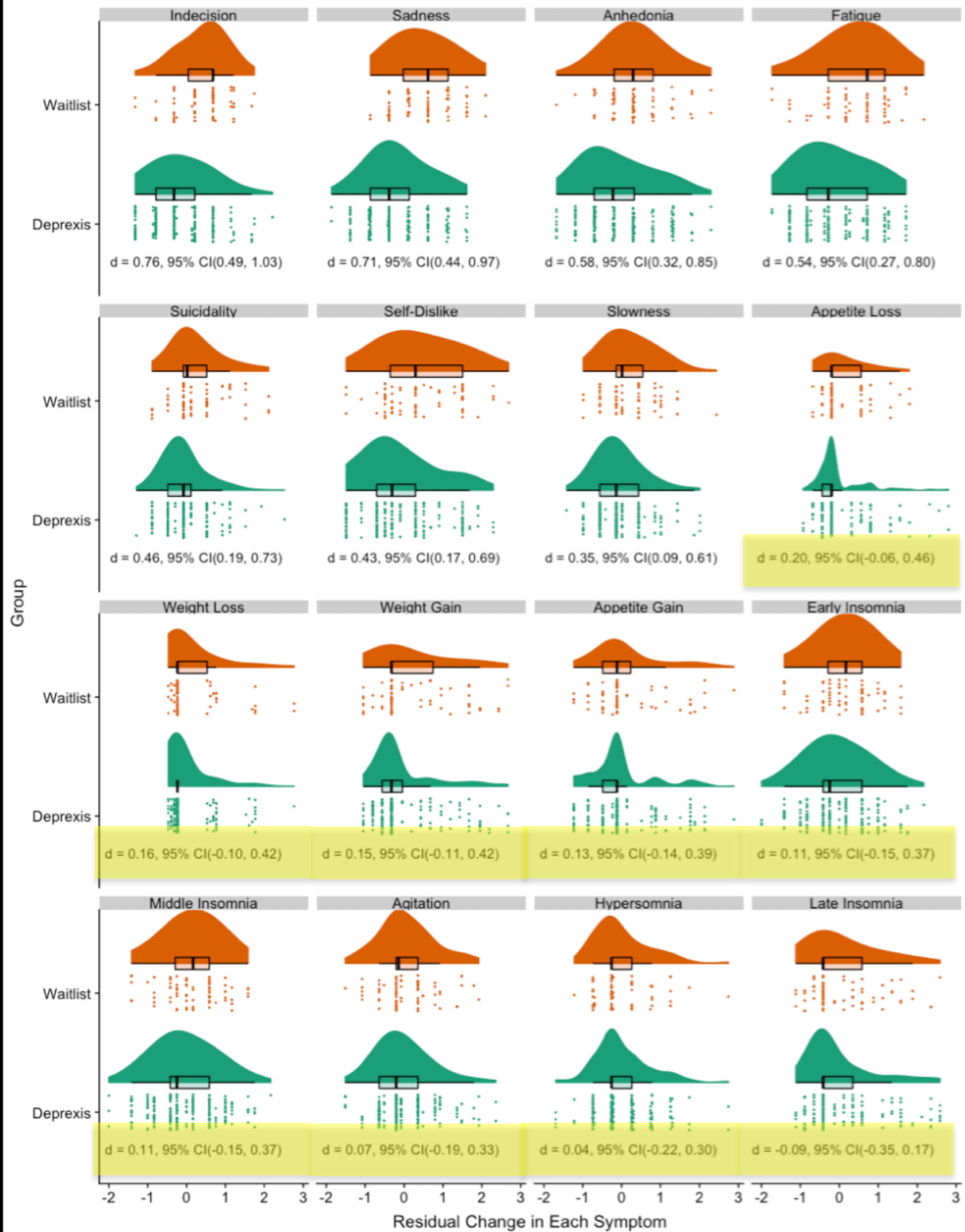
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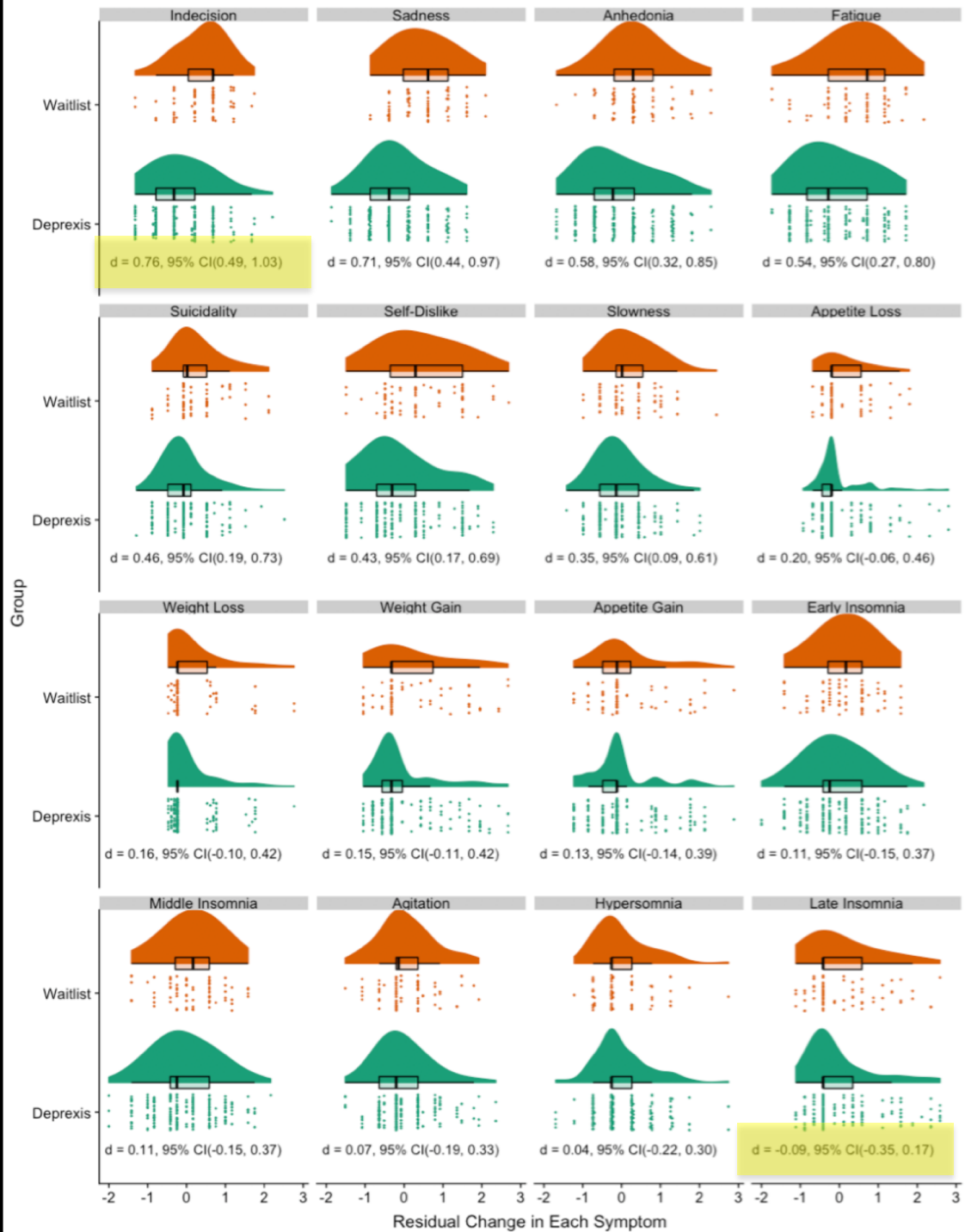


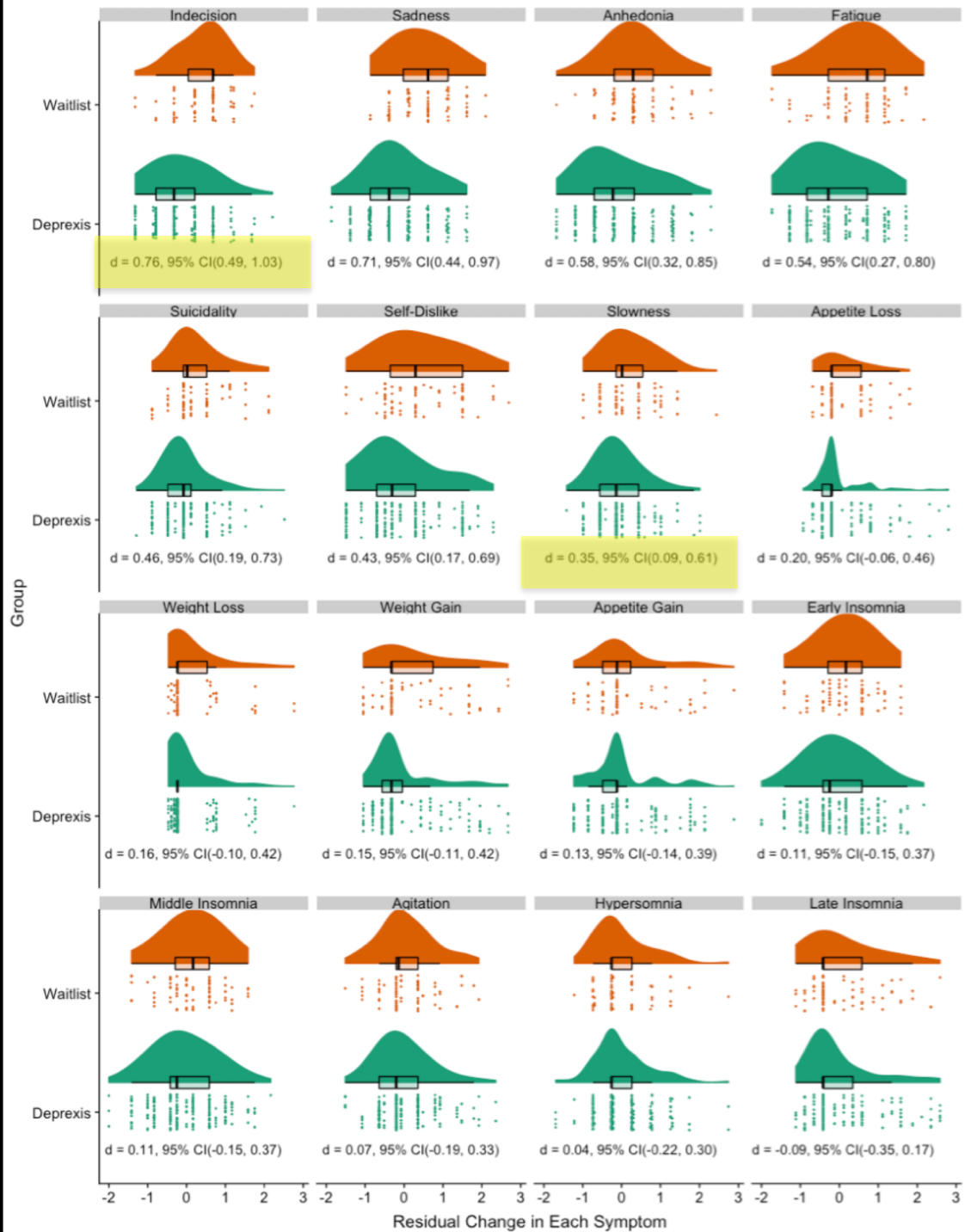












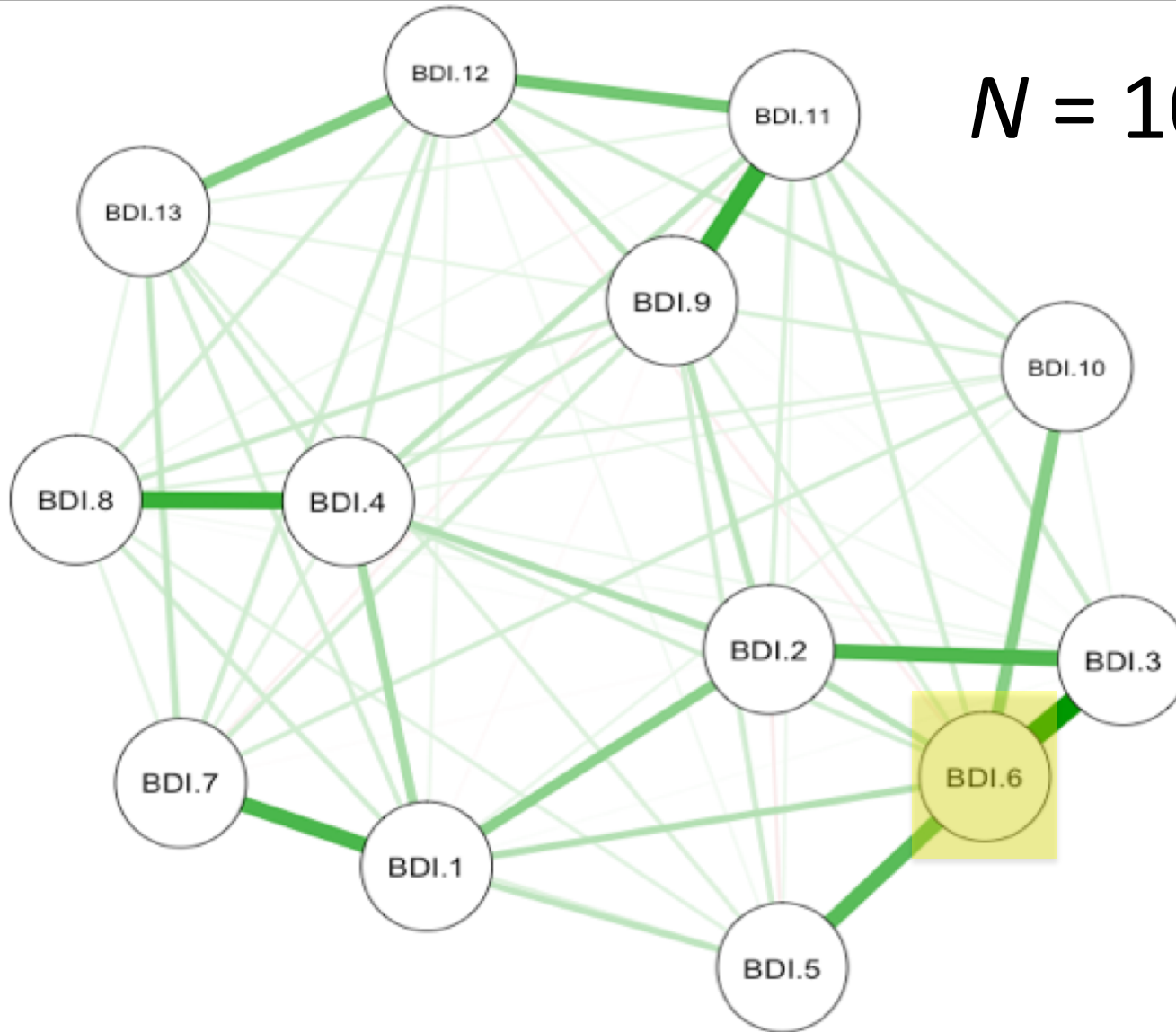
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**DIRECTLY ASSESSING WHETHER
CASCADING SYMPTOM RELIEF OCCURS**

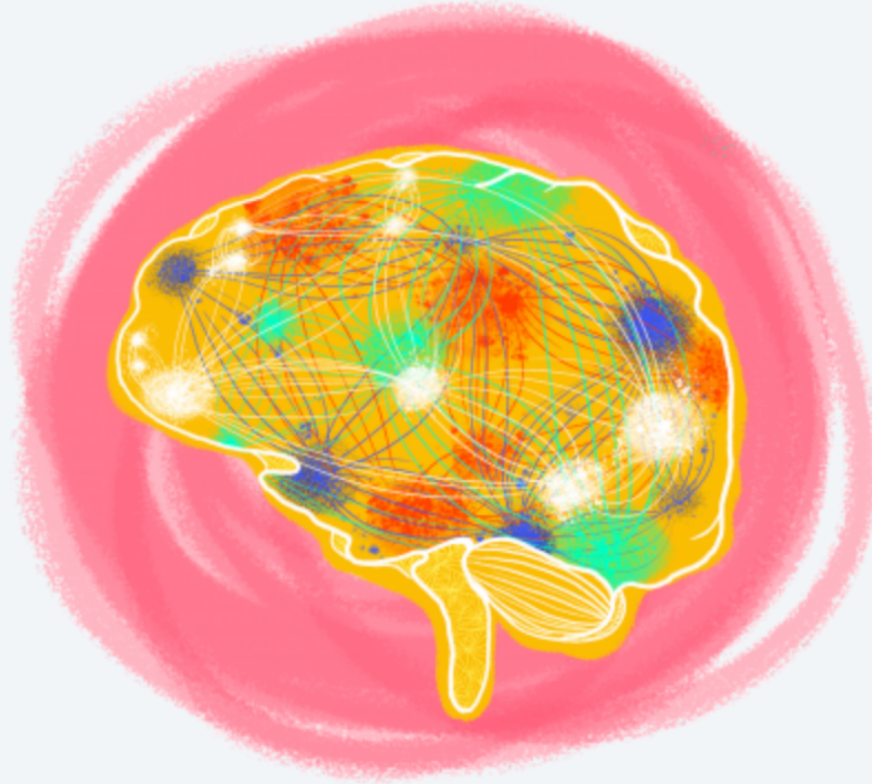
**DEVELOP TREATMENTS THAT DIRECTLY
TARGET CERTAIN SYMPTOMS**

$N = 10,005$



- BDI.1: Sadness
- BDI.2: Pessimism
- BDI.3: Failure
- BDI.4: Anhedonia
- BDI.5: Guilt
- BDI.6: Self-Hatred**
- BDI.7: Crying
- BDI.8: Social Loss
- BDI.9: Indecision
- BDI.10: Body Image
- BDI.11: Effort to Work
- BDI.12: Fatigue
- BDI.13: Appetite

For years we've studied:



- How the brain works
- The strategies college students use to achieve their goals
- Which strategies **actually help** students achieve goals they care about

We think what we're learning can be useful to everyone, including you.

But it's been a while since we've been in college, so we need the help of people who really know what college is like today to clearly communicate this scientific knowledge to other students.

Thank you for your attention!

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