

From Lab to Clinic: New Science of Mental Disorders

Prof Dr Anita Jansen

Maastricht University, the Netherlands

 @professorjansen

www.eetonderzoek.nl

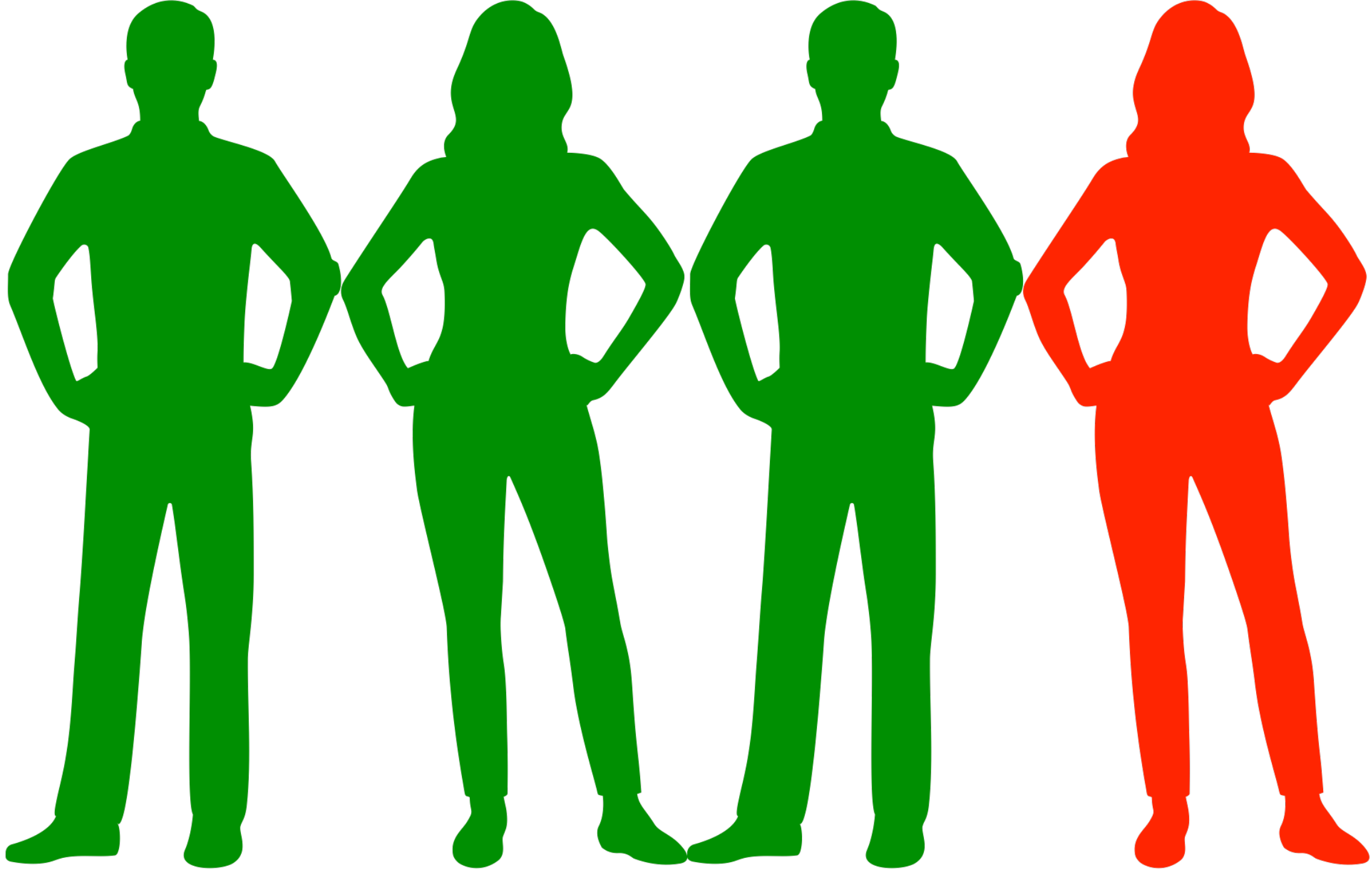
www.nsmdeu



Maastricht University

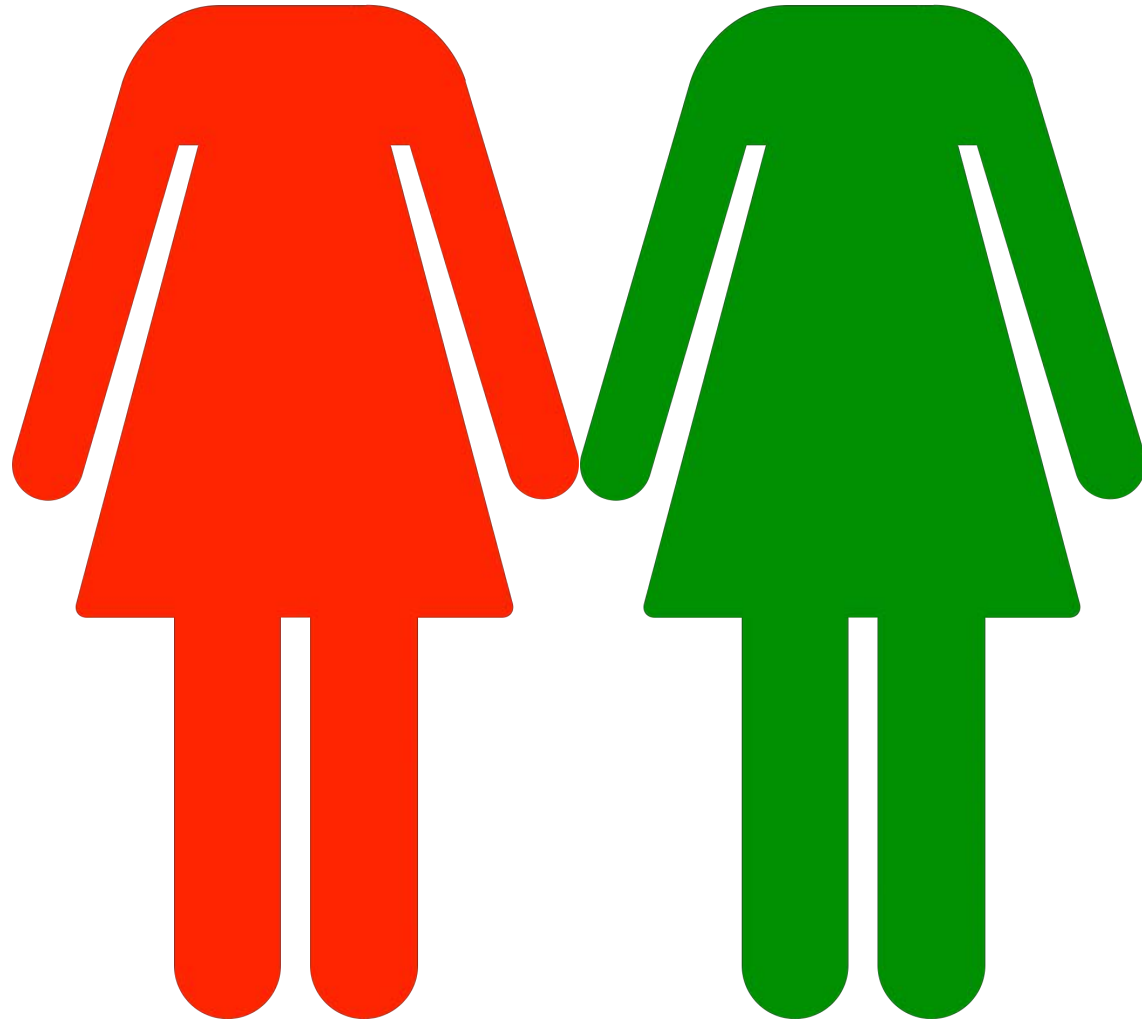
10

DEUTSCHER
PSYCHOTHERAPIE
KONGRESS
BERLIN _ 2022
7 - 11 JUNI

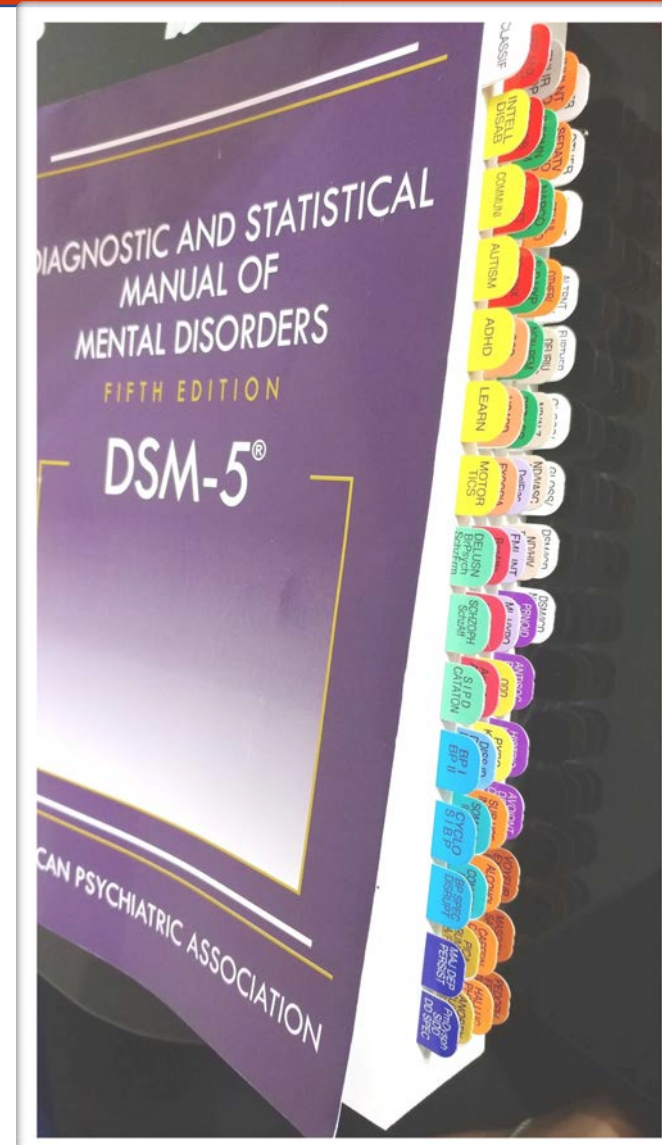
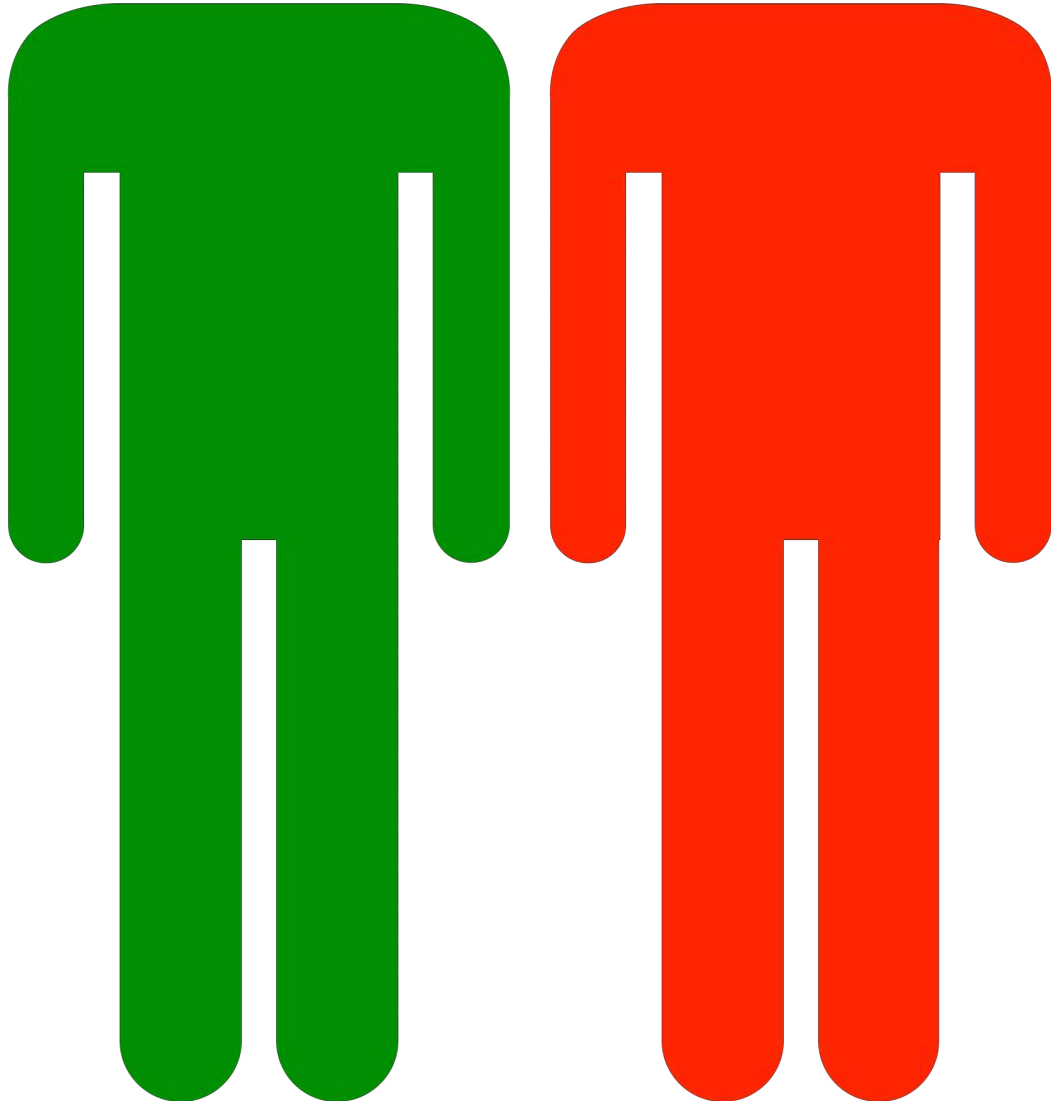


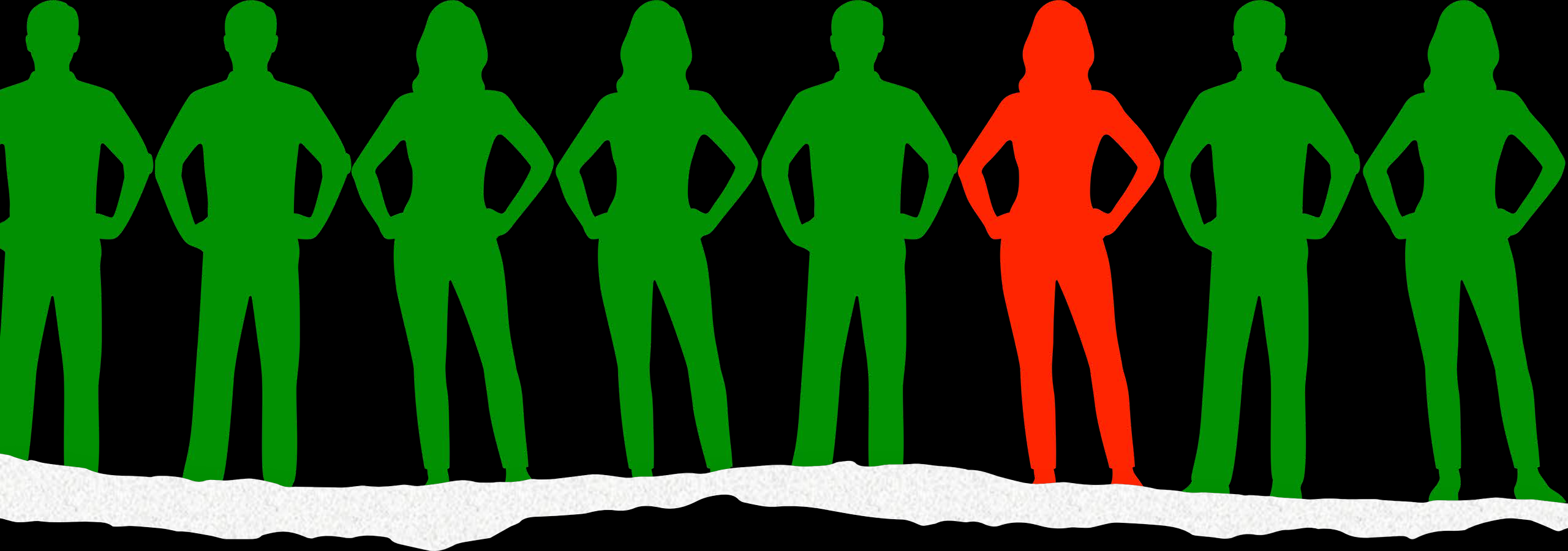
clinical reality: <50% sustained recovery

evidence-based best treatments



20 categories >200 Mental Disorders





Relapsing Mental Disorder

Clinical Solutions:

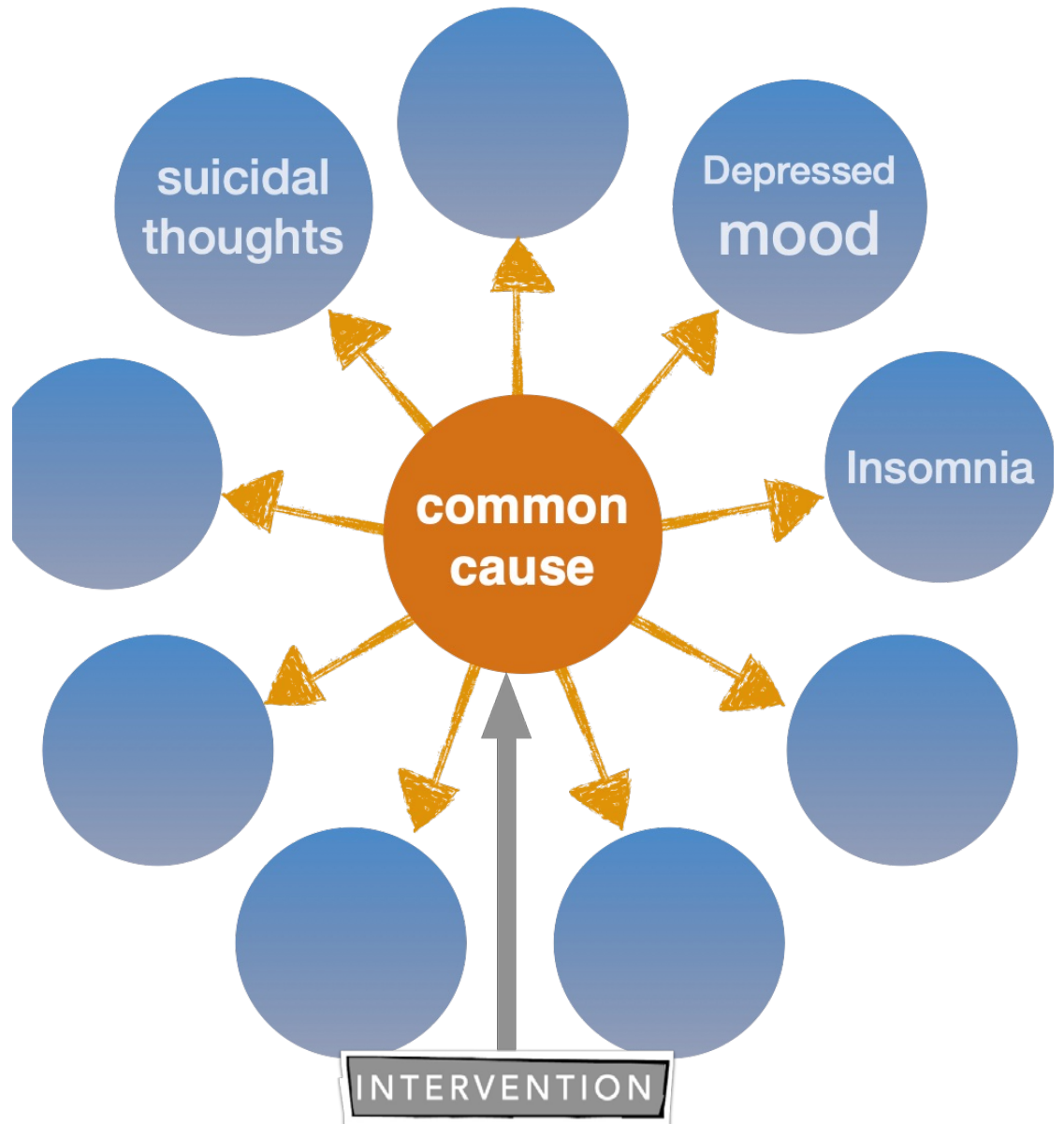
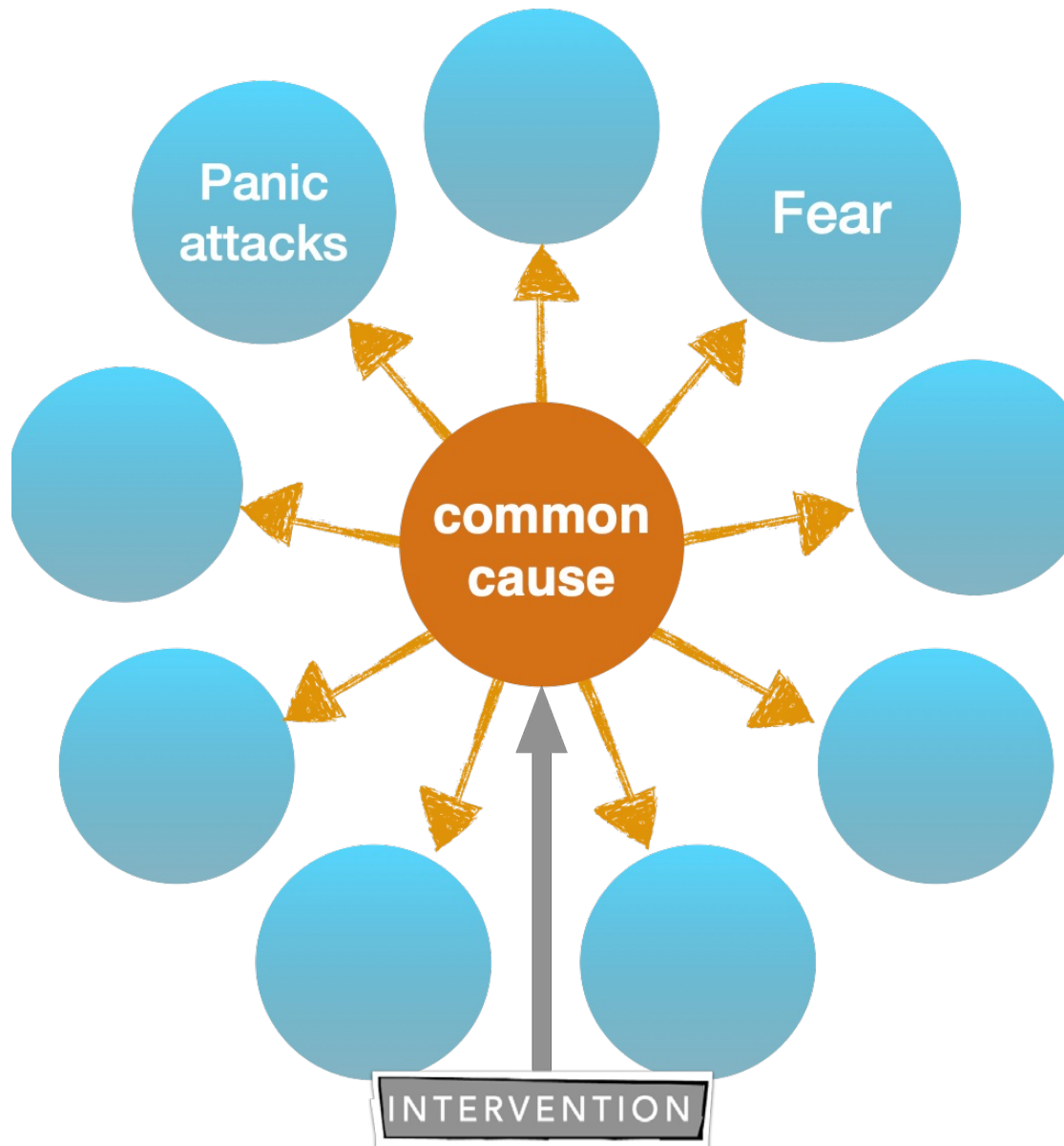
- Longer treatments...
- More intensive treatments...
- Other treatments...
- Stacking many types of therapy

No evidence for higher success rates...

ROOM FOR IMPROVEMENT

Can we do better?

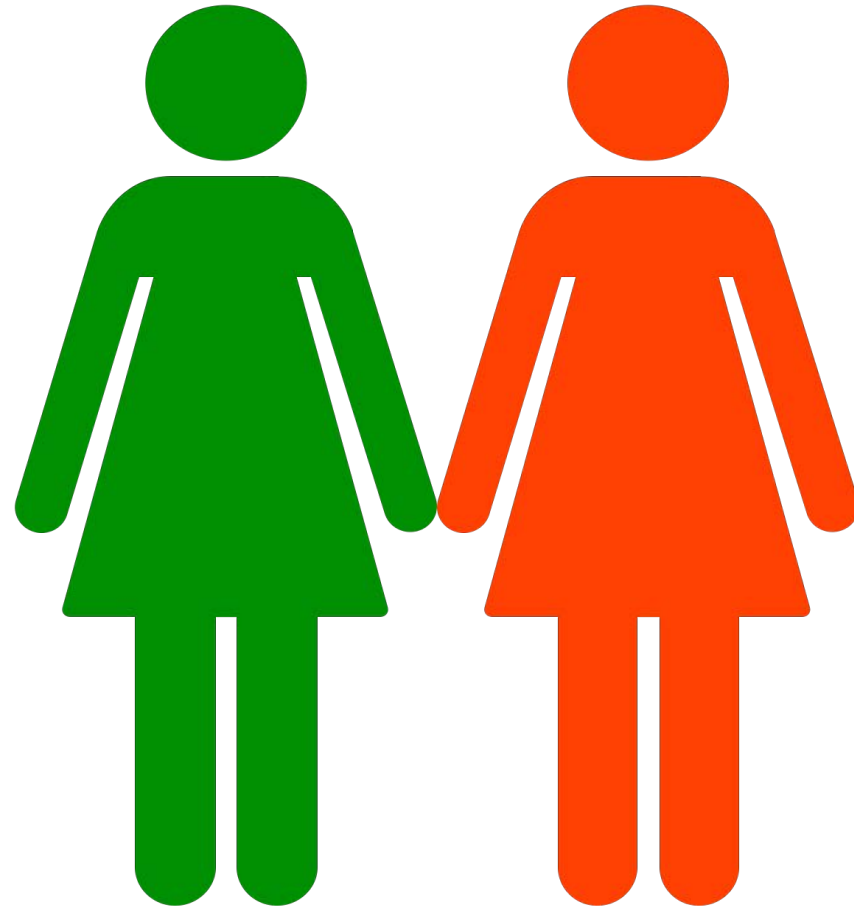
How can we do better?



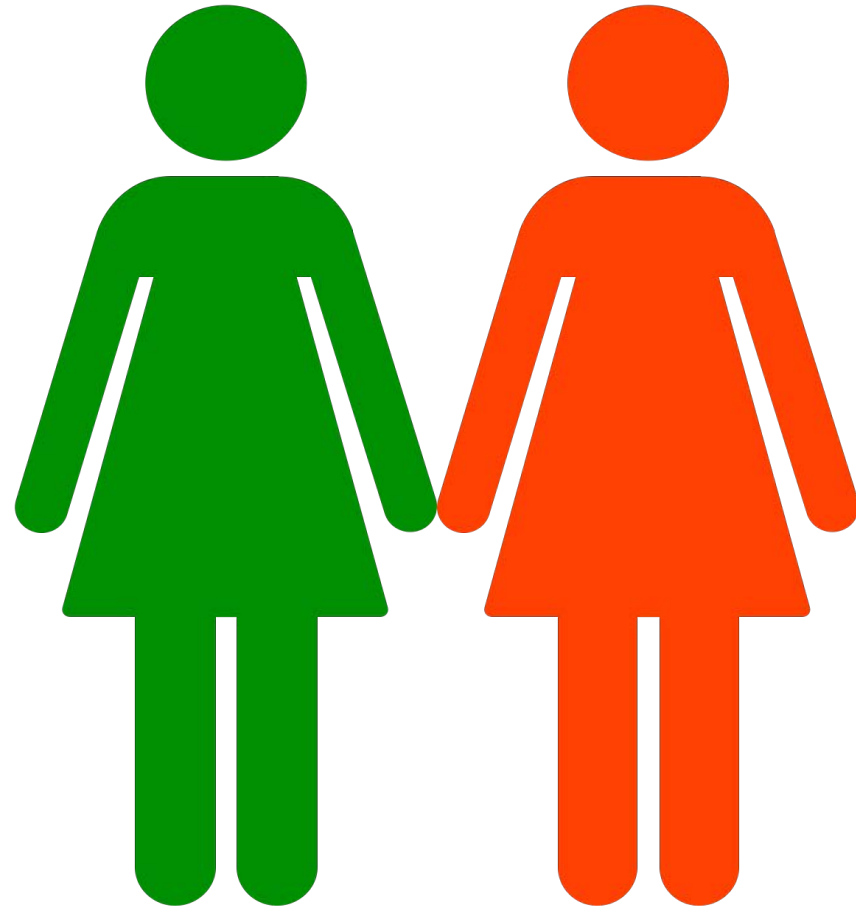
Problems with This Approach



Problem 1: Treatment Results are Dramatic



50-60% do not profit from the
best treatments (long term)



Meet Ann, Tess and Maria

Ann

BMI 17

Binge eating

Depression

Insomnia

Tess

BMI 16

Purging

PTSD, IoU

Perfectionism

Maria

BMI 15

Restriction

Anxiety, OCD

Compulsive Exercise


Anorexia Nervosa

Treatment Guidelines vs Effects

- Treatment of Choice AN: CBT(-E) – family therapy – MANTRA – SSCM
- BUT: These specialized treatments are no better than control treatments
- AND: None of the specialised treatments is better than another

Meta-analysis on the efficacy of psychological treatments for anorexia nervosa

Eur Eat Disorders Rev. 2019;27:331–351.

Elske van den Berg¹  | Laura Houtzager² | Jasmijn de Vos³ | Inge Daemen² | Georgia Katsaragaki² | Eirini Karyotaki⁴ | Pim Cuijpers⁴ | Jack Dekker²

Psychological Medicine
2019
cambridge.org/psr..

Review Article

Cite this article: Murray SB, Quintana DS, Leach KL, Griffiths S, Le Grange D (2019)

Treatment outcomes for anorexia nervosa: a systematic review and meta-analysis of randomized controlled trials

Stuart B. Murray¹, Daniel S. Quintana², Katharine L. Loeb³, Scott Griffiths⁴ and Daniel Le Grange^{1,5}

Comparative efficacy and acceptability of psychological interventions for the treatment of adult outpatients with anorexia nervosa: a systematic review and network meta-analysis



2021

M Solmi, T D Wade, S Byrne, C Del Giovane, C G Fairburn, E G Ostinelli, F De Crescenzo, C Johnson, U Schmidt, J Treasure, A Favaro, S Zipfel, A Cipriani

Summary

Background No consistent first-option psychological interventions for adult outpatients with anorexia nervosa emerges from guidelines. We aimed to compare stand-alone psychological interventions for adult outpatients with anorexia

Lancet Psychiatry 2021;
8: 215–24

Problem 2: Huge Individual Differences

Meet Ann, Tess and Maria

Ann

BMI 17

Binge eating

Depression

Alcoholism

Tess

BMI 16

Purging

PTSD, IoU

Insomnia

Maria

BMI 15

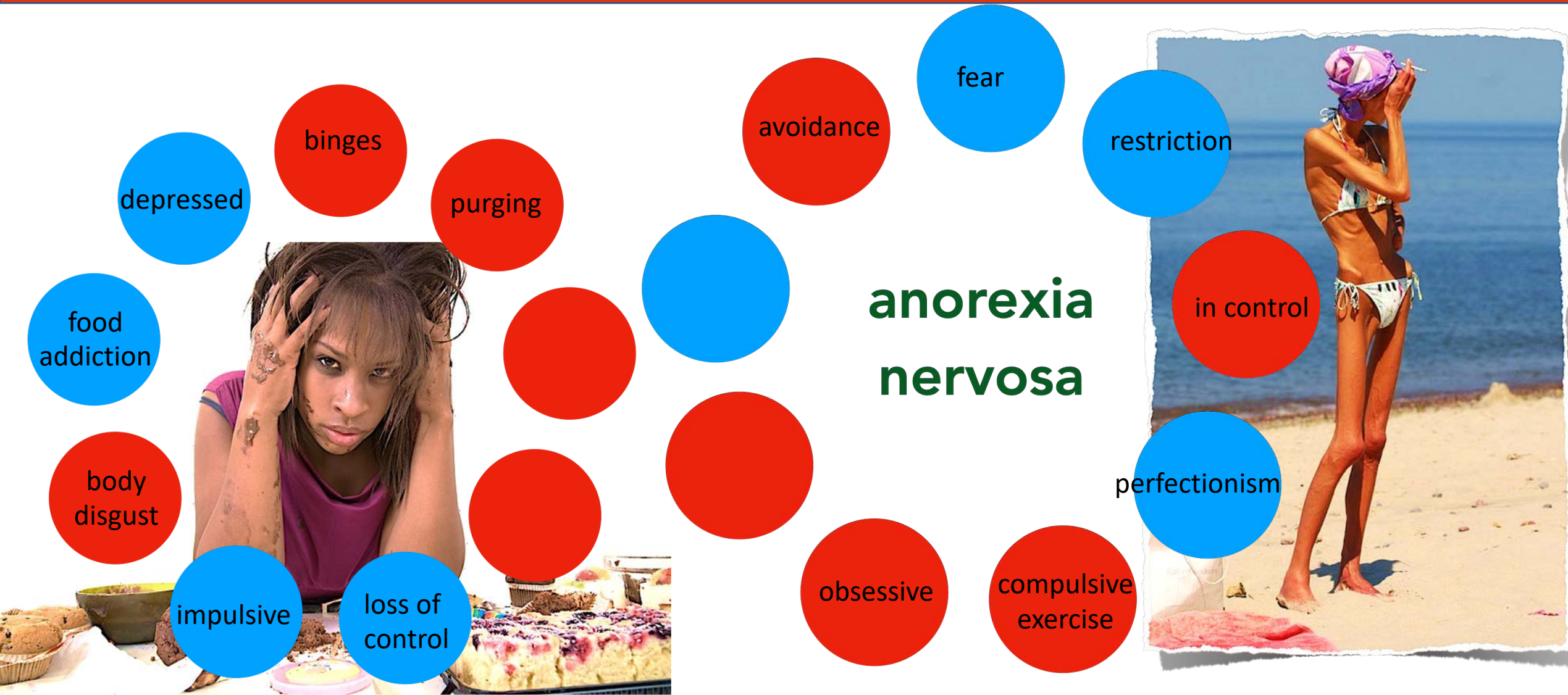
Restriction

Anxiety, OCD

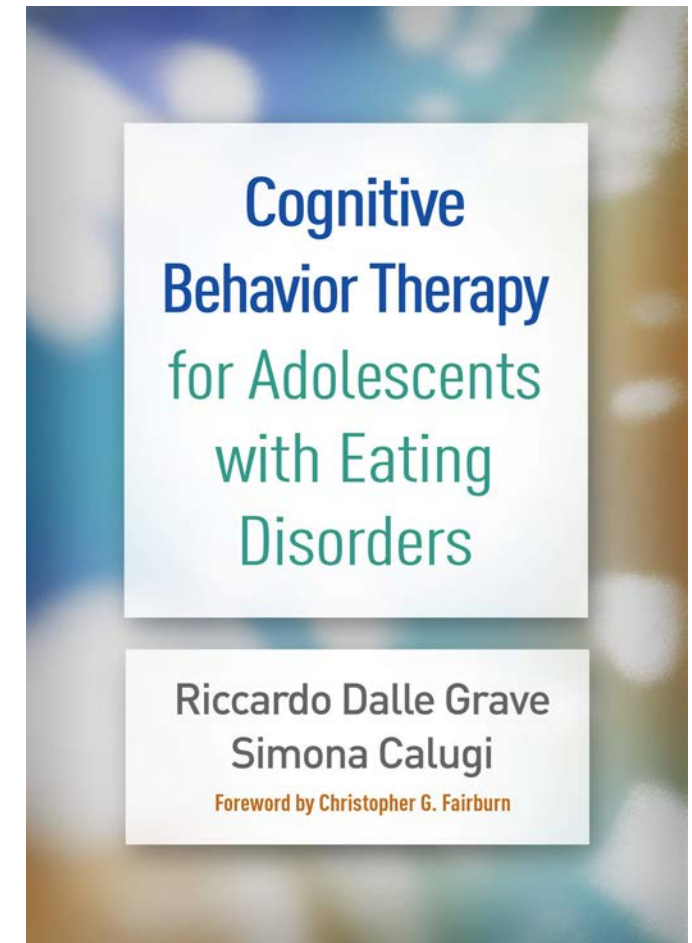
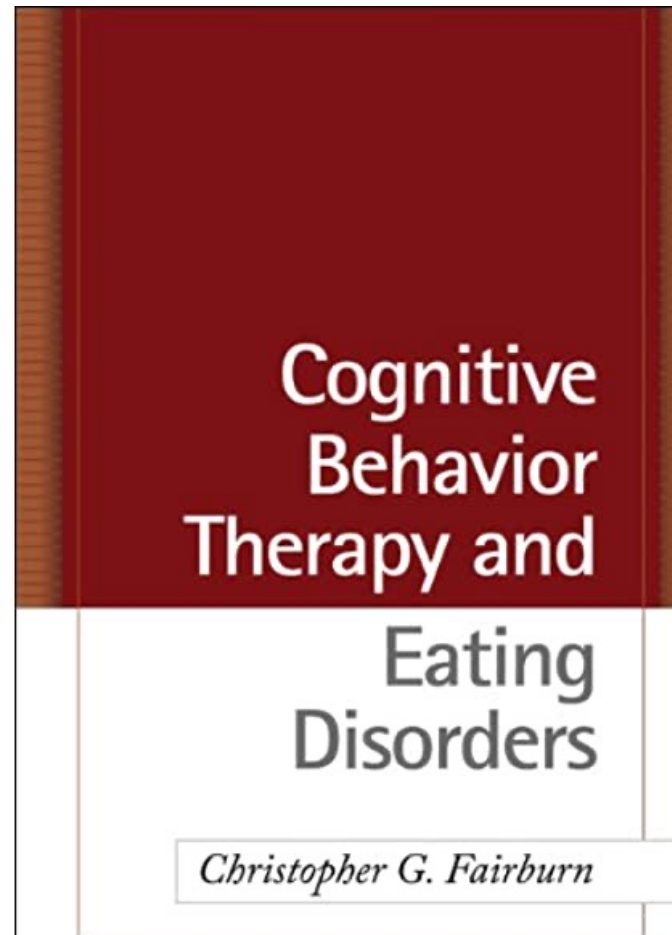
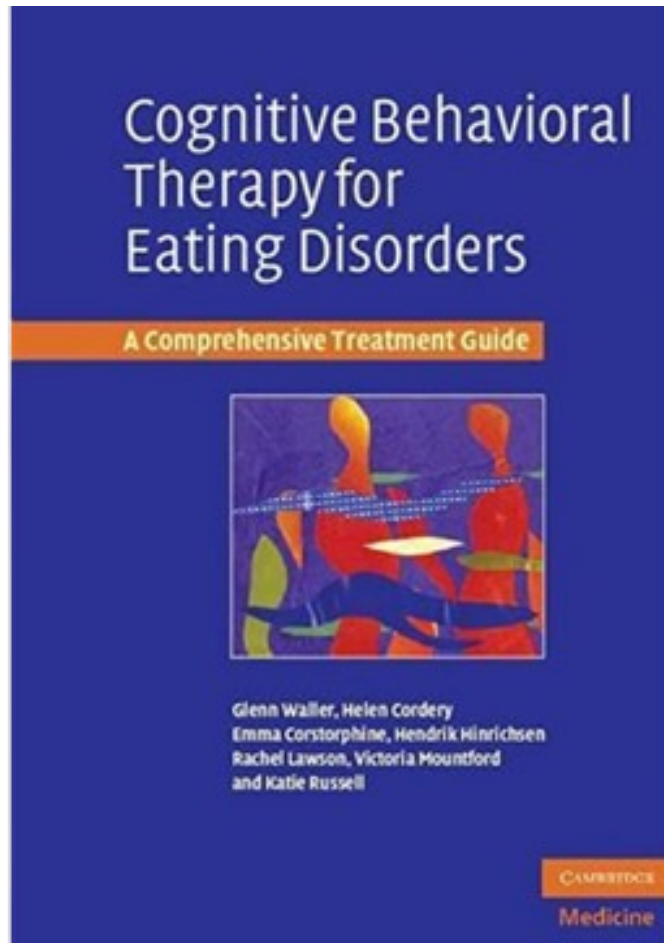
Compulsive Exercise

same diagnosis → different symptoms

Same Diagnosis → Different Symptoms



Same Diagnosis → Same Treatment



Problem 3: Comorbidity is the rule



Comorbidity

Ann

BMI 17

Binge eating

Depression

Alcoholism

Tess

BMI 16

Purging

PTSD, IoU

Insomnia

Maria

BMI 15

Restriction

Anxiety, OCD

Compulsive Exercise

(only) the “main” problem is treated

Problem 4: Transdiagnostic Processes

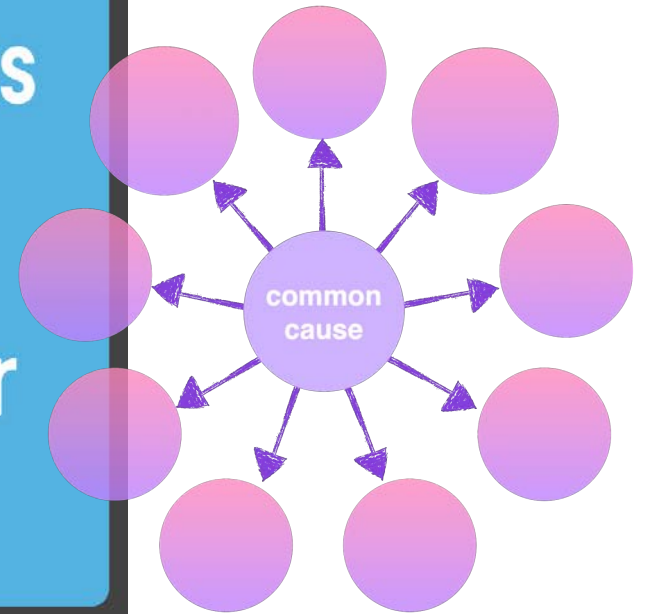
- Shared processes across multiple mental disorders
- Go beyond DMS-diagnoses
- Examples: attentional biases, recurrent negative thinking, rumination, avoidance behaviors, maladaptive emotion regulation, cognitive control, and so on ...
- Most current treatments are disorder-specific interventions - shared processes usually are ignored

e.g., Harvey & Watkins, 2004; Hayes & Hofmann, 2018; Hofmann & Hayes, 2019, Clinical Psychological Science; Mansell et al. 2015 Psychopathology Review; Carlucci et al., Clinical Psychology Review 2021; Schaeuffele et al., International Journal of Cognitive Therapy 2020; work of David Barlow; Reinholt et al., Psychother Psychosom 2022; RDOC, Insel, 2013

Problem 5: Thé Cause Not (Never) Found

Approaches that have tried to identify the causes of separate categories of mental disorders by searching for a unitary cognitive, behavioural or biological account 'have failed spectacularly'

Borsboom et al., Plos One, 2011



To Sum Up

1. Treatment results are insufficient
2. Huge individual differences within one diagnostic category
3. Comorbidity is the rule
4. No treatment of underlying transdiagnostic processes
5. The search for the cause did not yield much



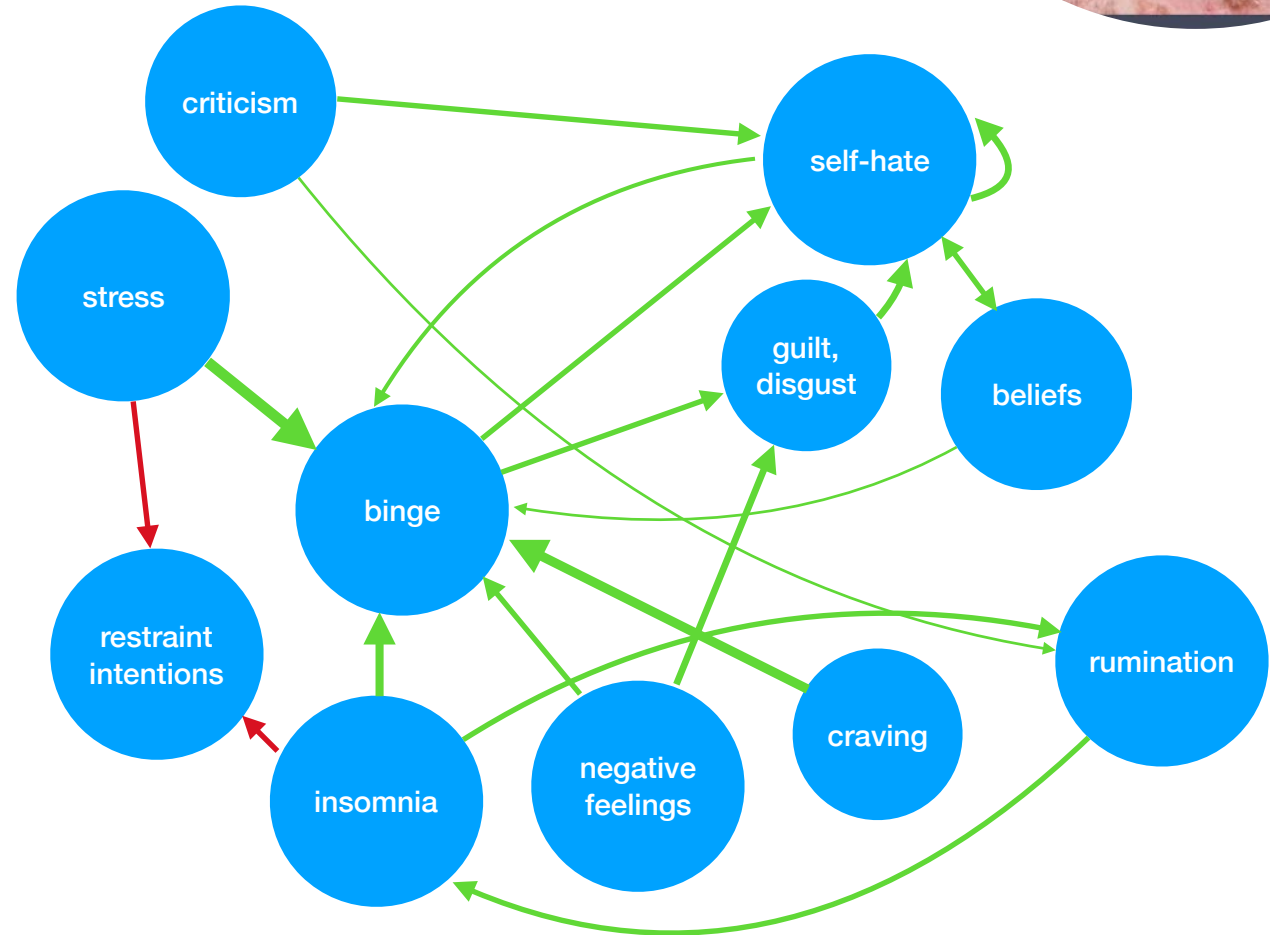
We may need a big change in the way
we think about mental disorders

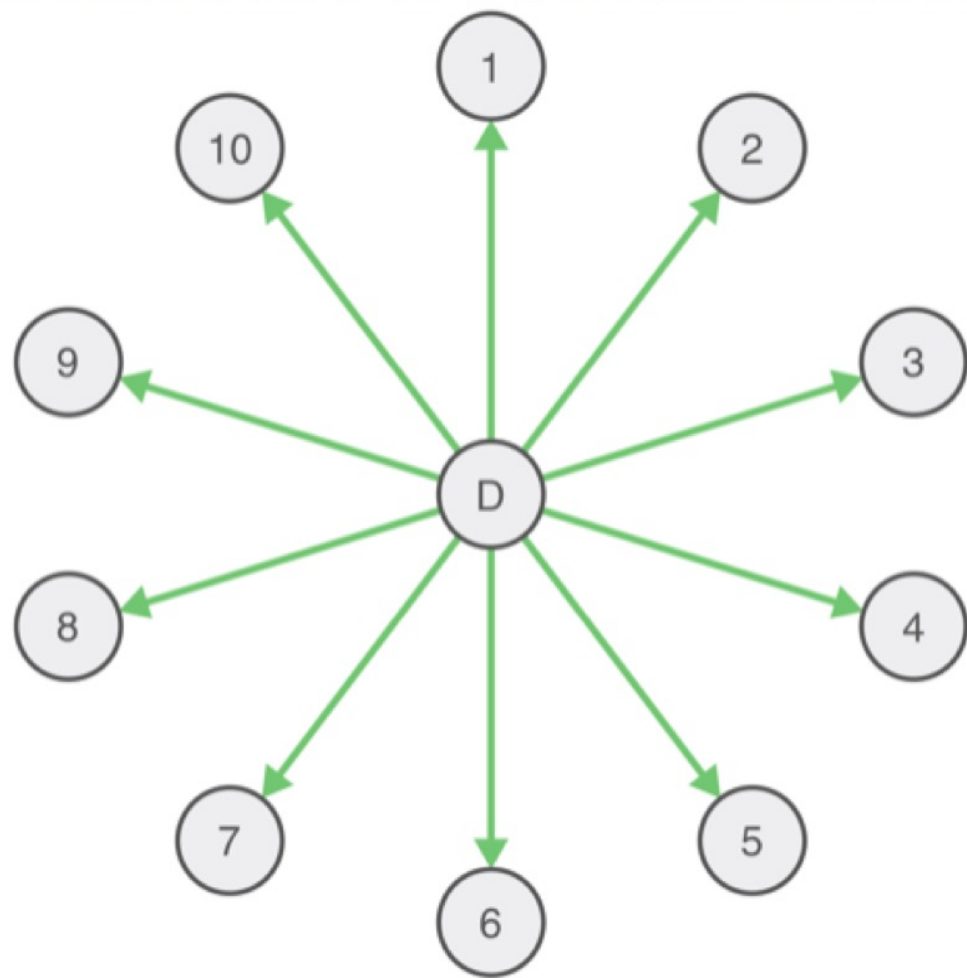
New Paradigm: Complex Dynamic Individual Networks

Prof Denny Borsboom

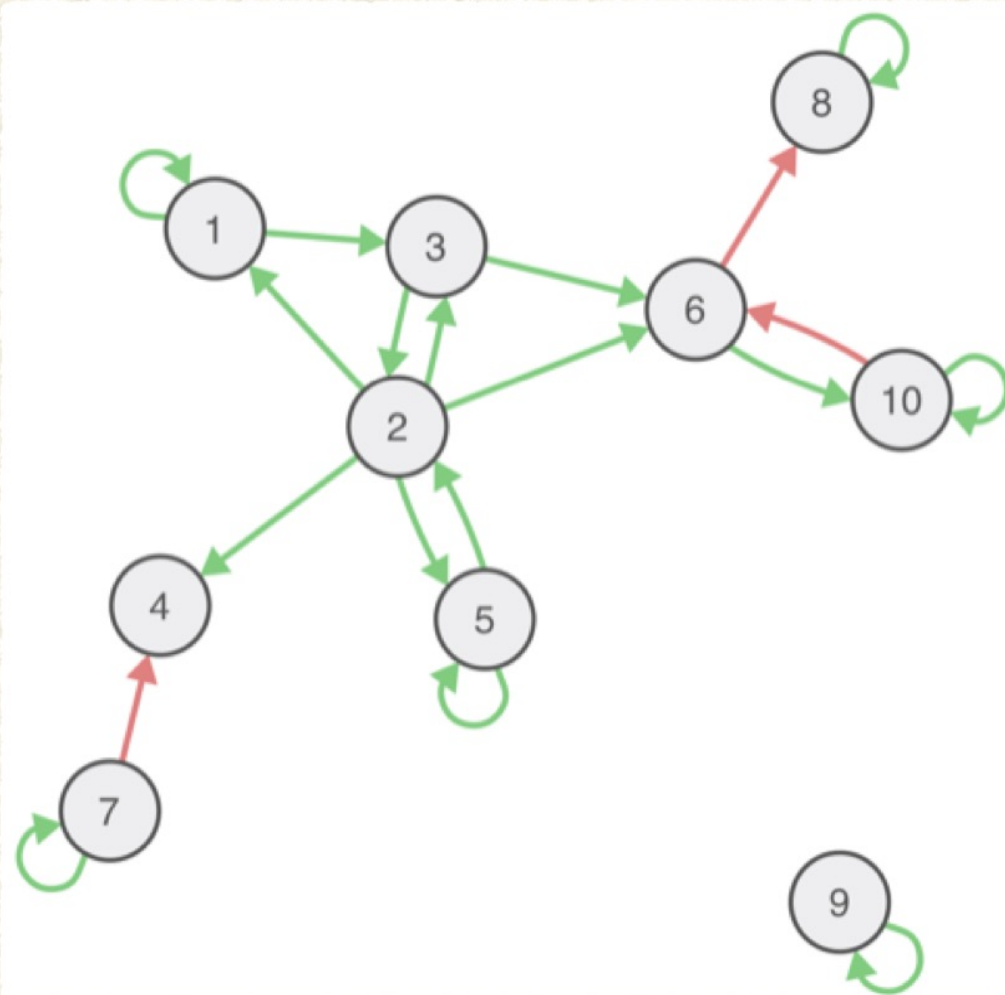


- Mental disorders are complex interacting systems of symptoms
- Symptoms are input for other symptoms; Symptoms reinforce each other, symptoms trigger symptoms
- Mental disorder = symptom covariance
- Symptom covariance emerges from dynamic interactions between symptoms





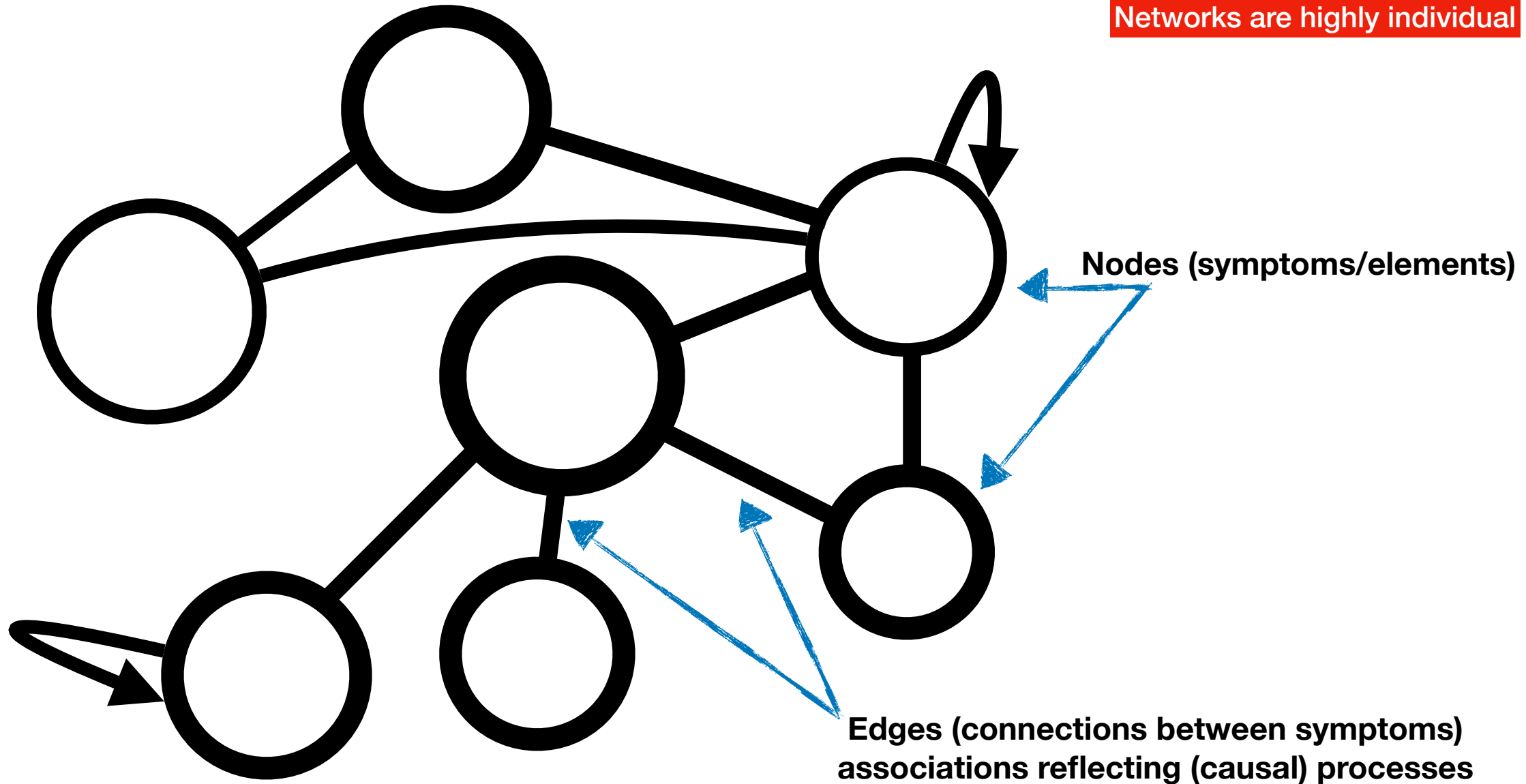
current

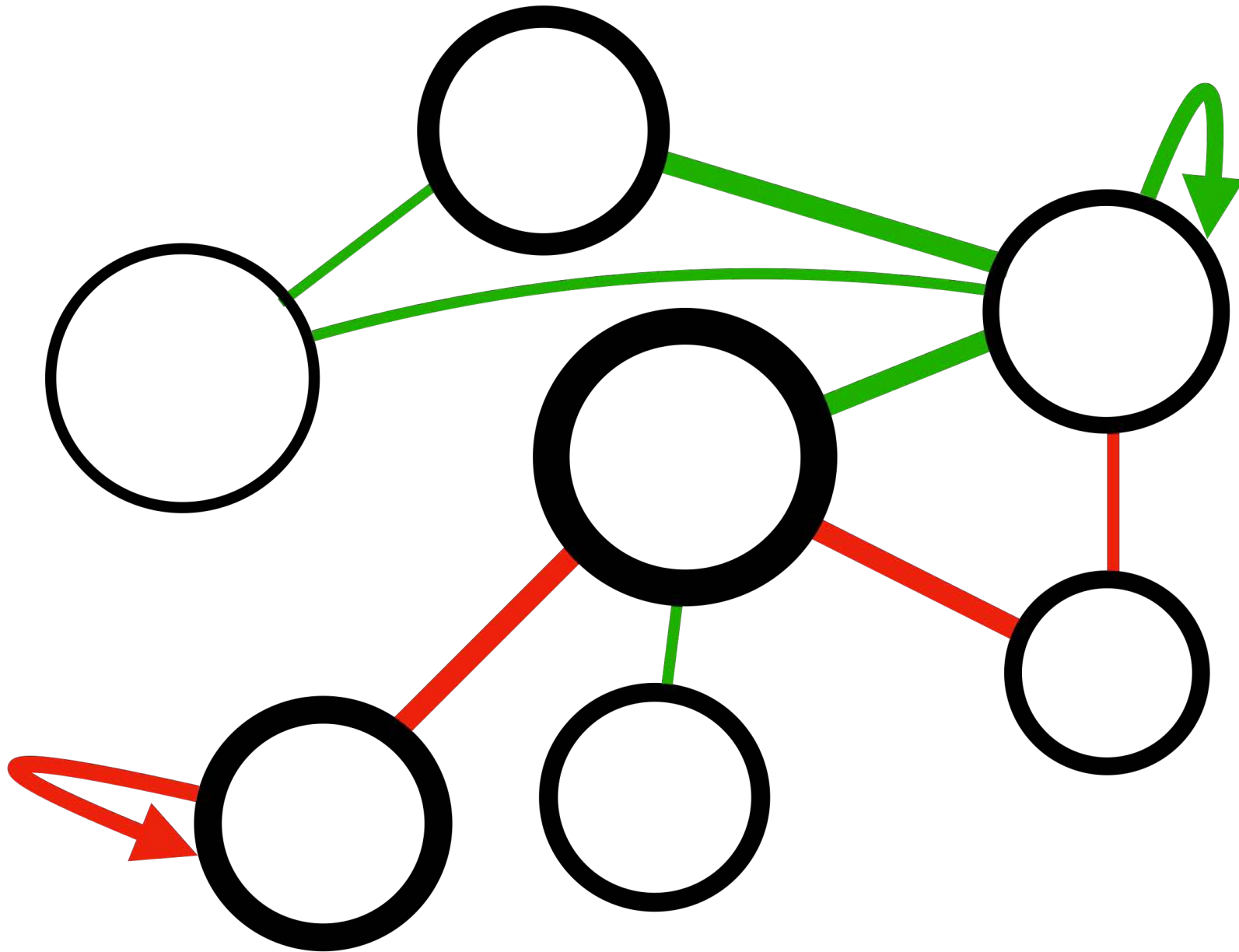


new

A disorder reflects a network of dynamically interacting symptoms

Networks are highly individual





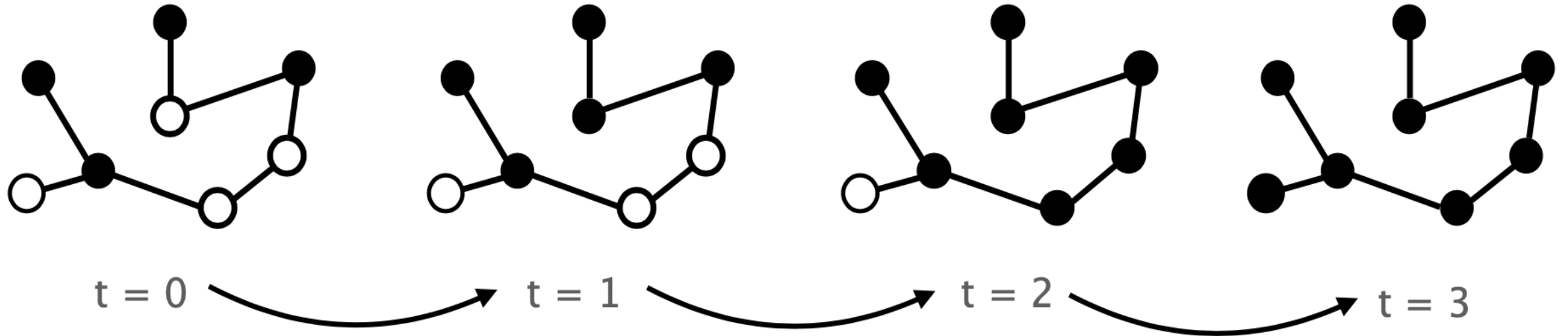
Nodes:

- Centrality
- Size

Edges:

- Strength
- Amount
- Red/Green

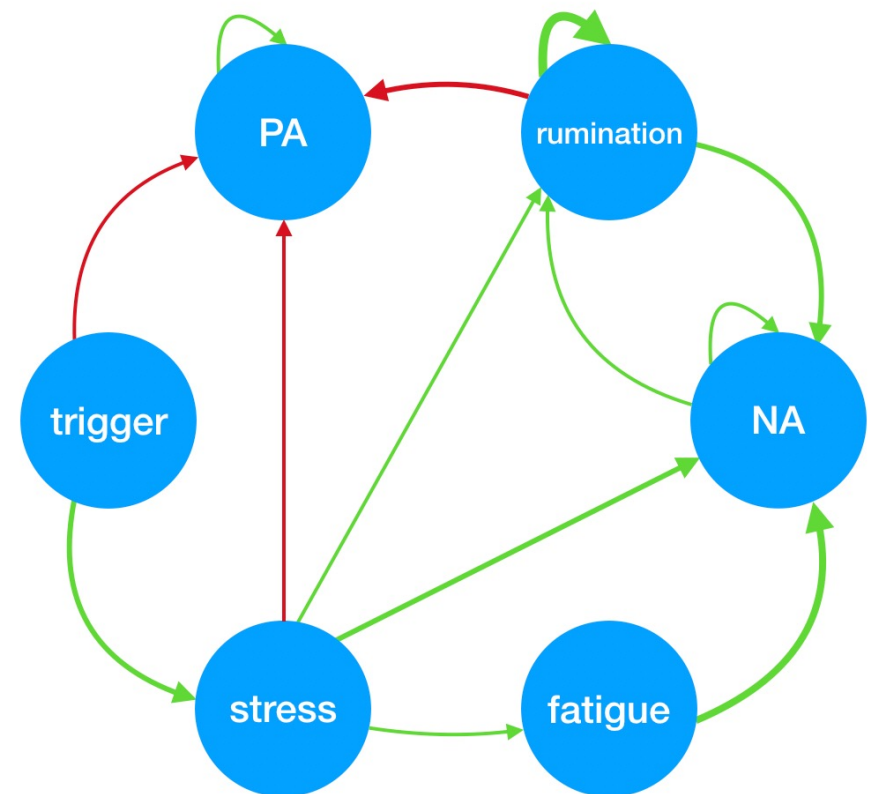
Longitudinal \rightarrow dynamics of the network



Network's Promises 1

A real Empirical Diagnosis and Case Formulation

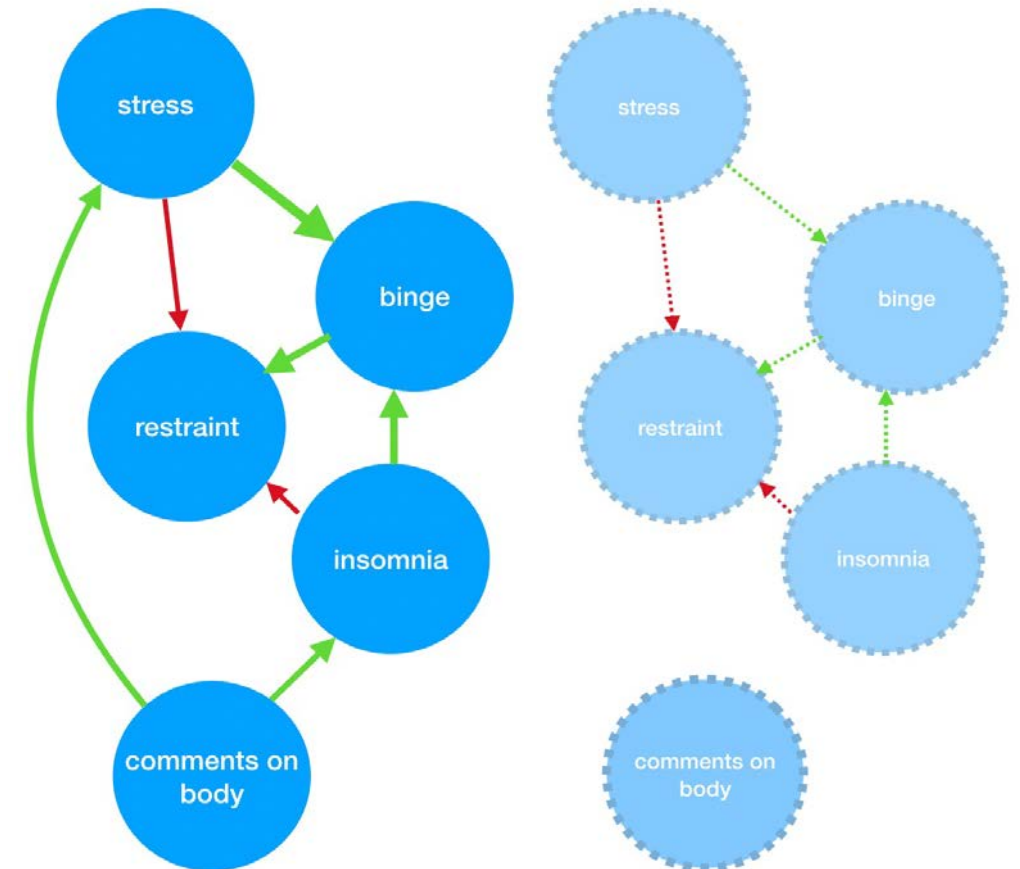
Which is in sharp contrast with current diagnoses and case formulations: fully dependent on Clinical Judgment, validity of interviews/questionnaires, and DSM-rules



Network's Promises 2

If we know one's critical/central nodes and particularly strong edges, we can provide an individually tailored **network-informed treatment**

Aim: deactivate central nodes and weaken or completely dissolve edges, to bring the system back to a healthier state.

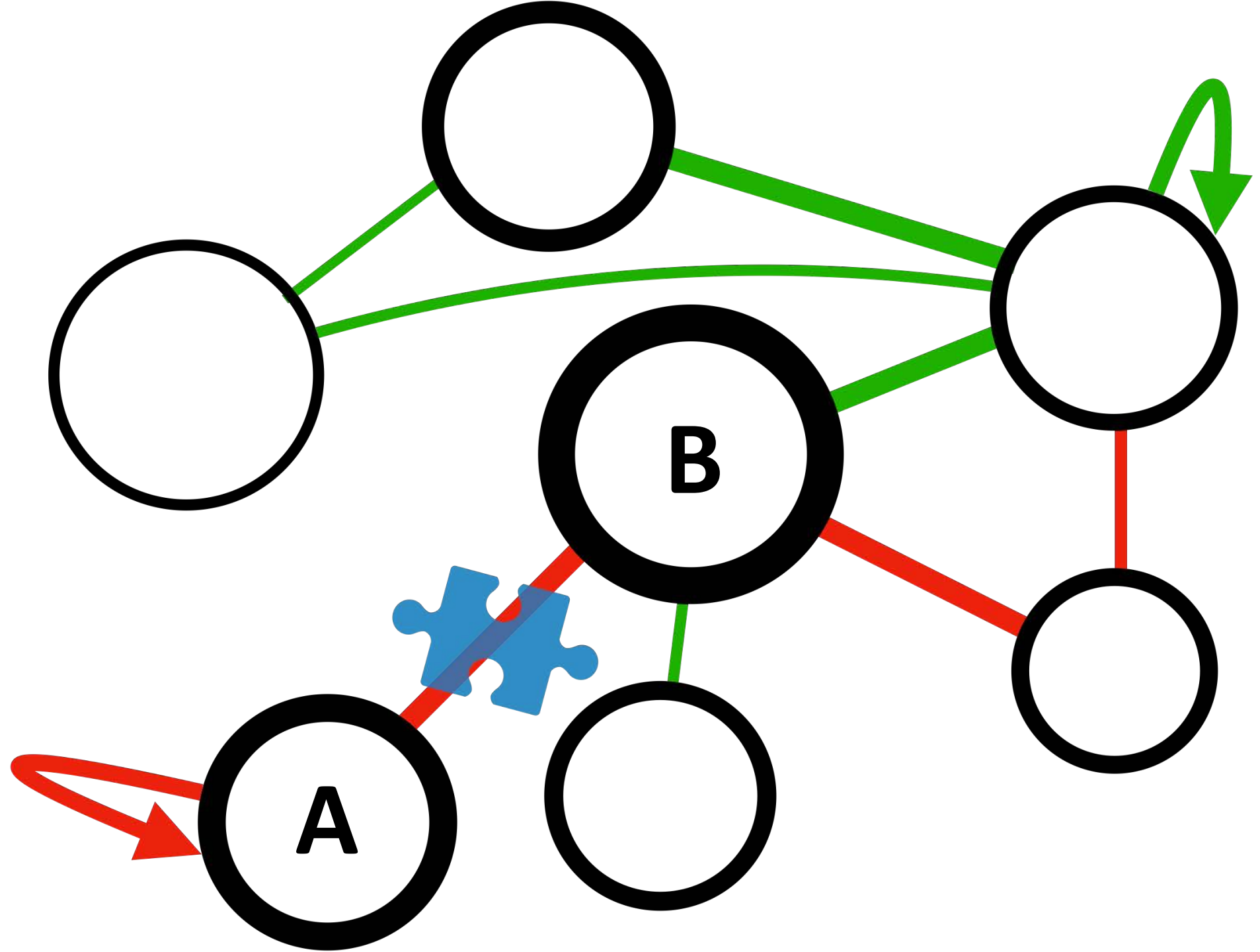


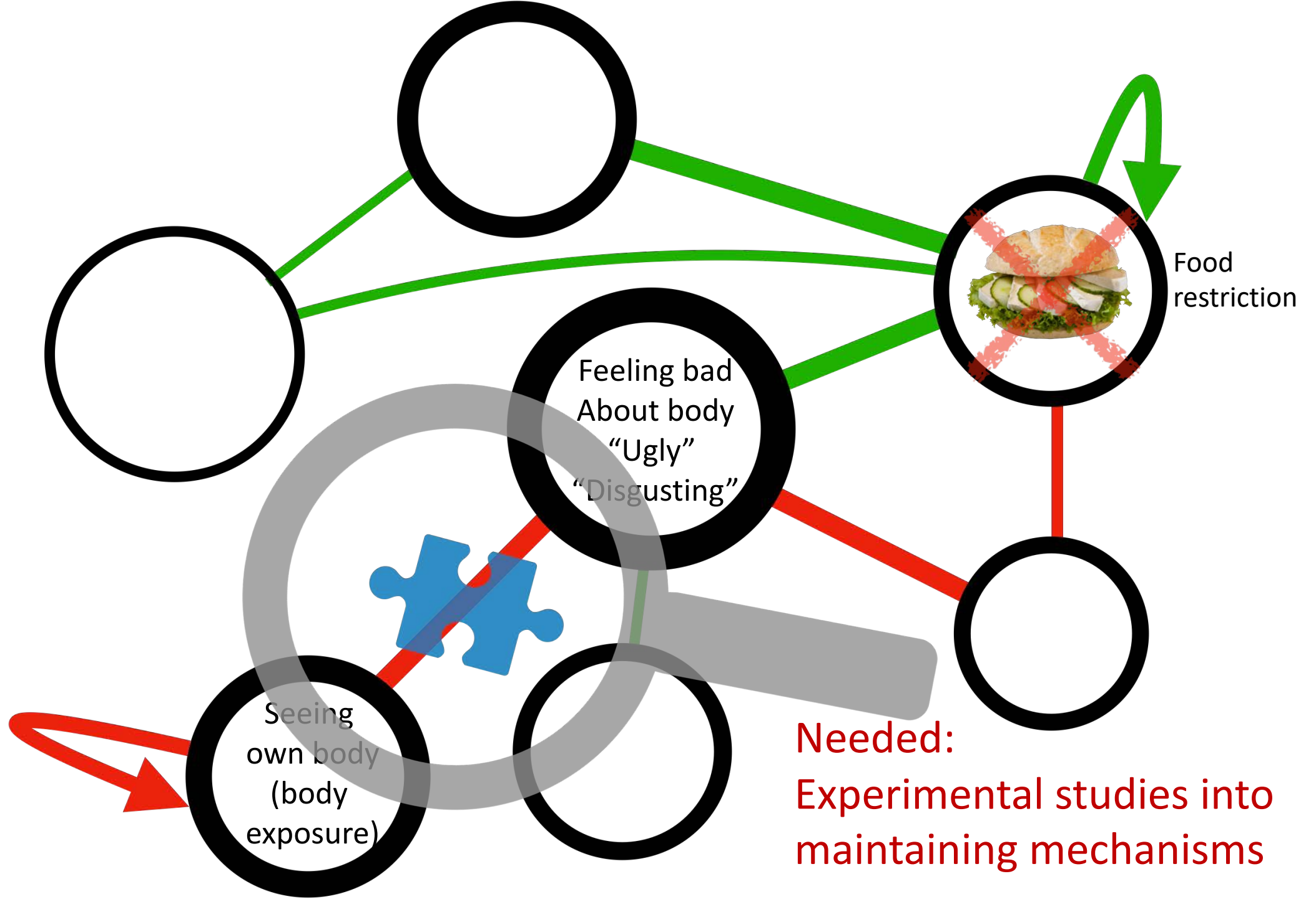
Can the network approach solve the
5 problems of the current approach?

Problem 5: “The” Cause

- We do not need *the* cause of a disorder: a mental disorder is an interacting system of symptoms (elements), and these individual symptom interactions *are* the (idiosyncratic) disorder
- But we do want to know ***how*** and ***why*** some nodes are connected

Causality within the Network

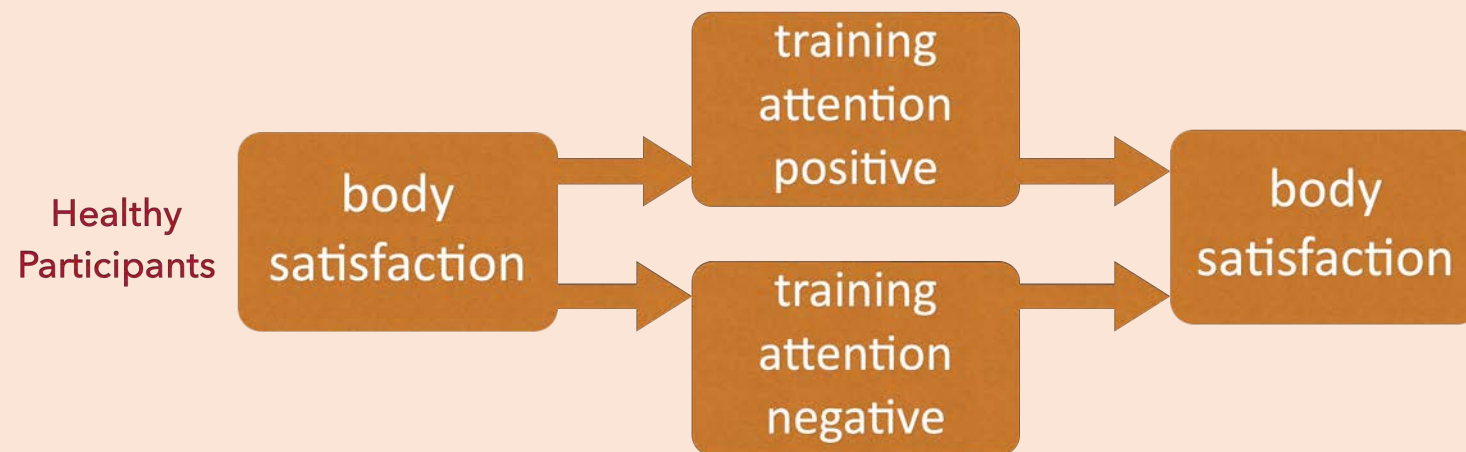
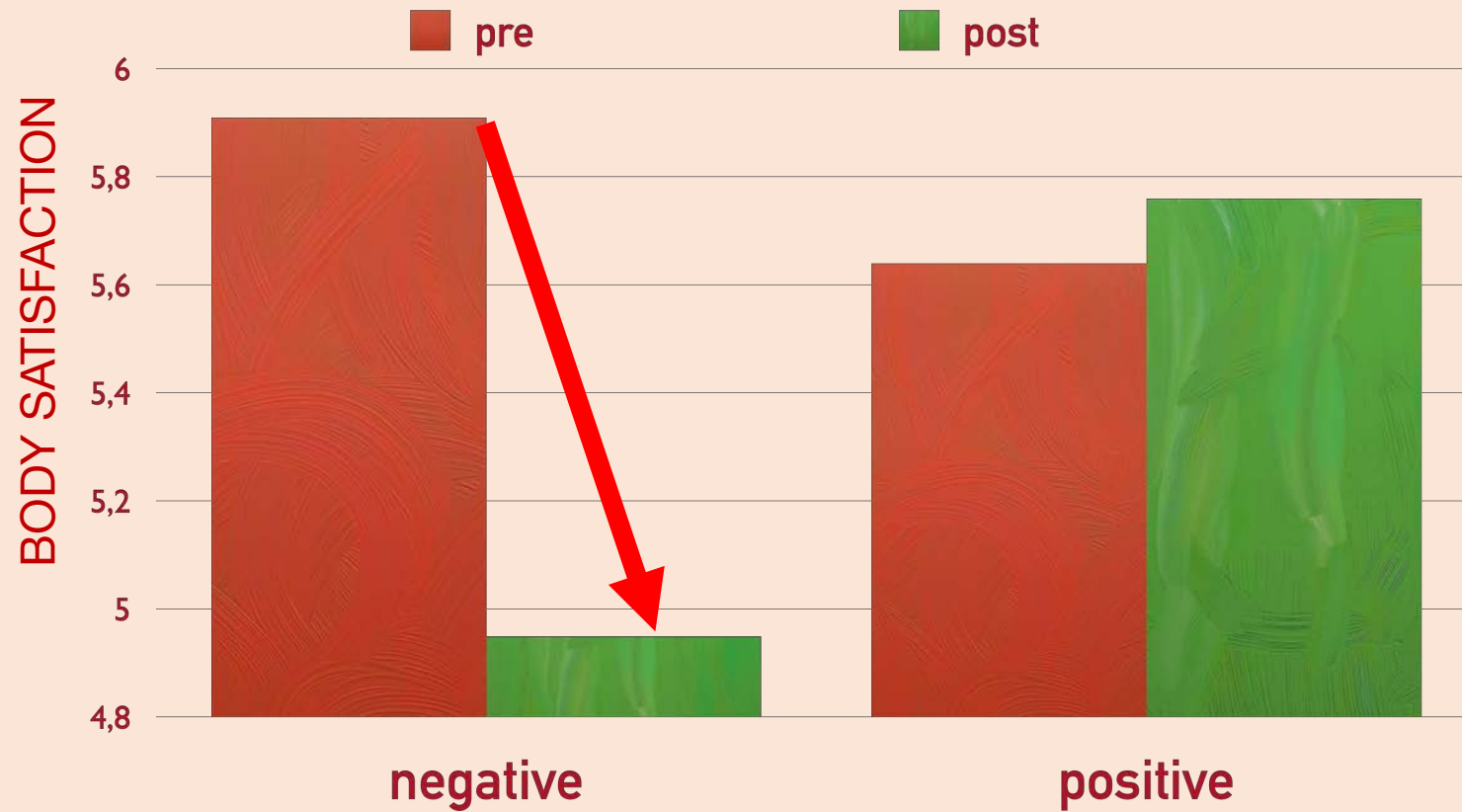






ATTENTION - OWN BODY



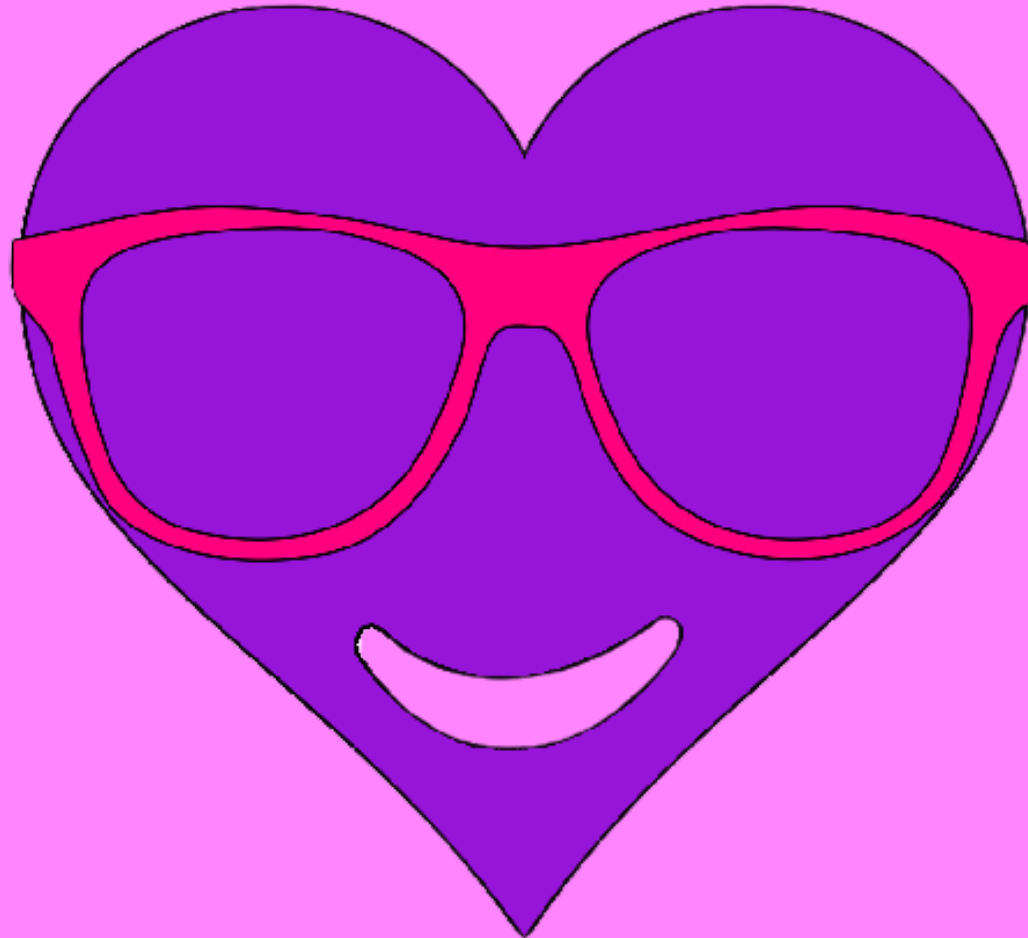


BODY DISSATISFIED STUDENTS

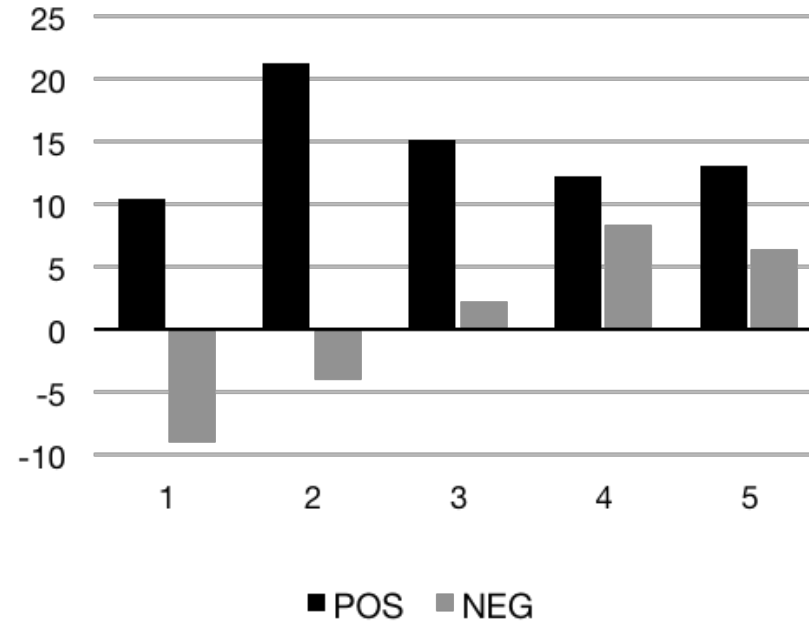




Train to focus on attractive parts
Train to not focus on 'unattractive' body parts
Like healthy females do.... **Die Rosarote Brille!**

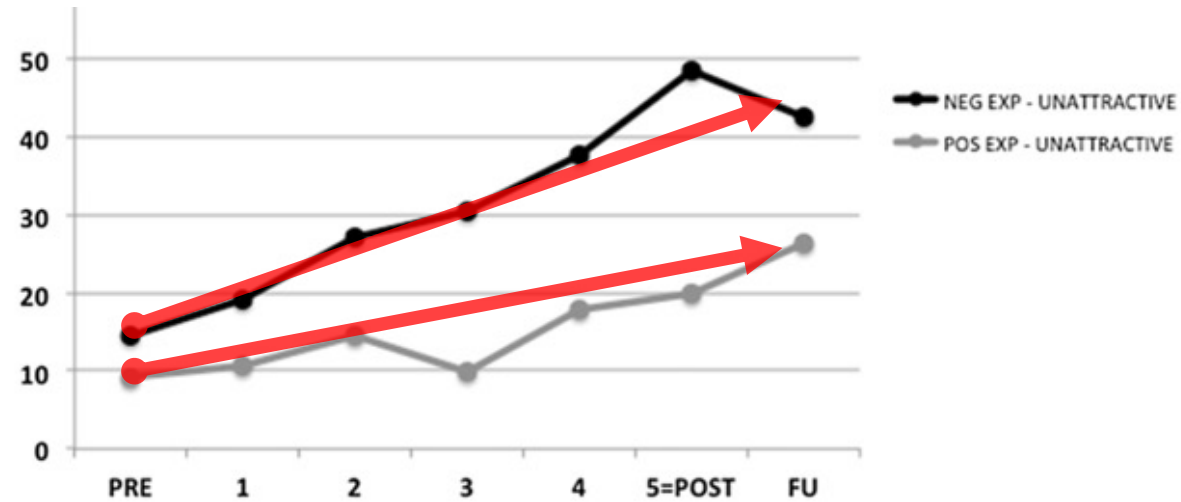


EMOTIES

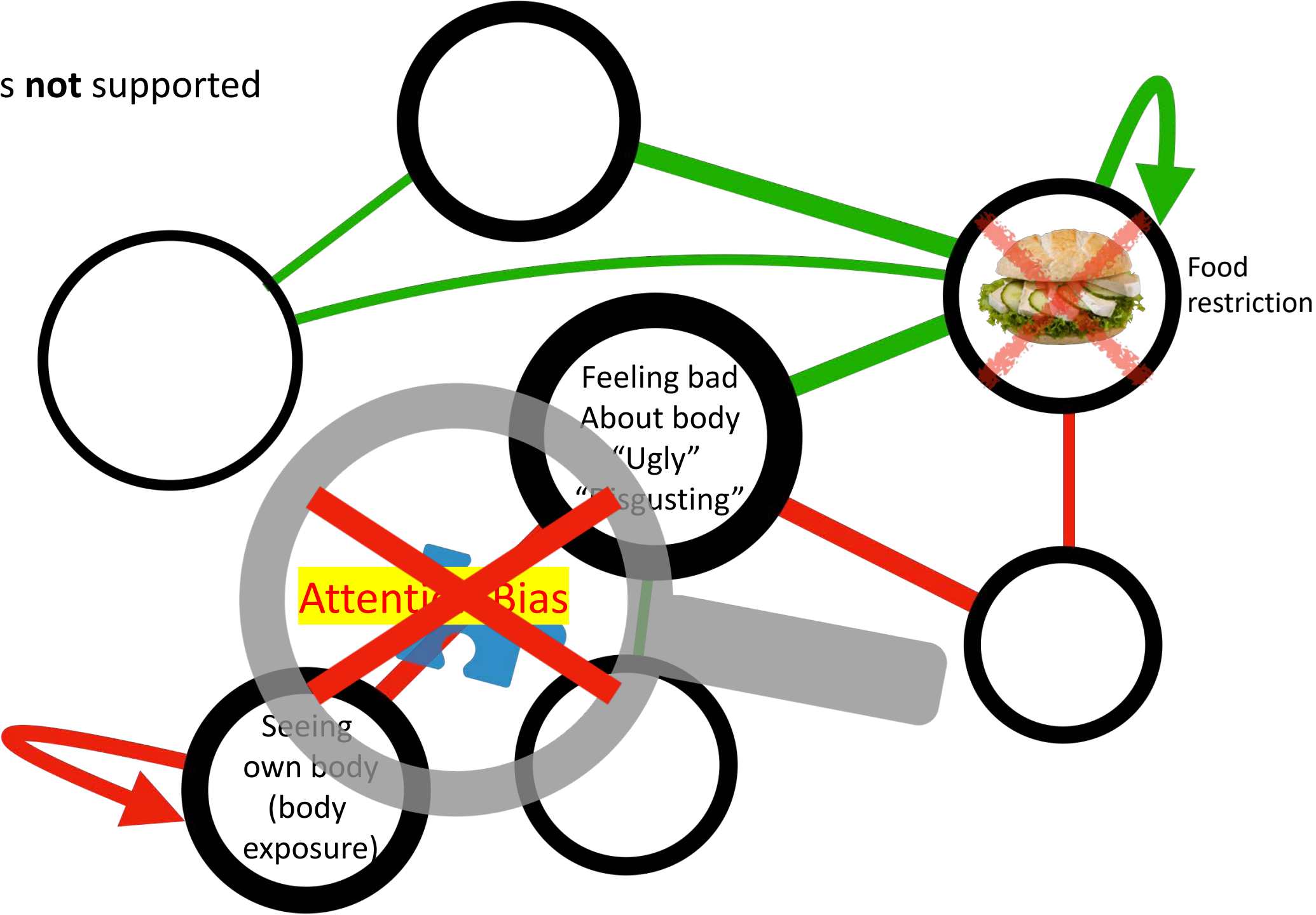


↑ Body Esteem
Mood

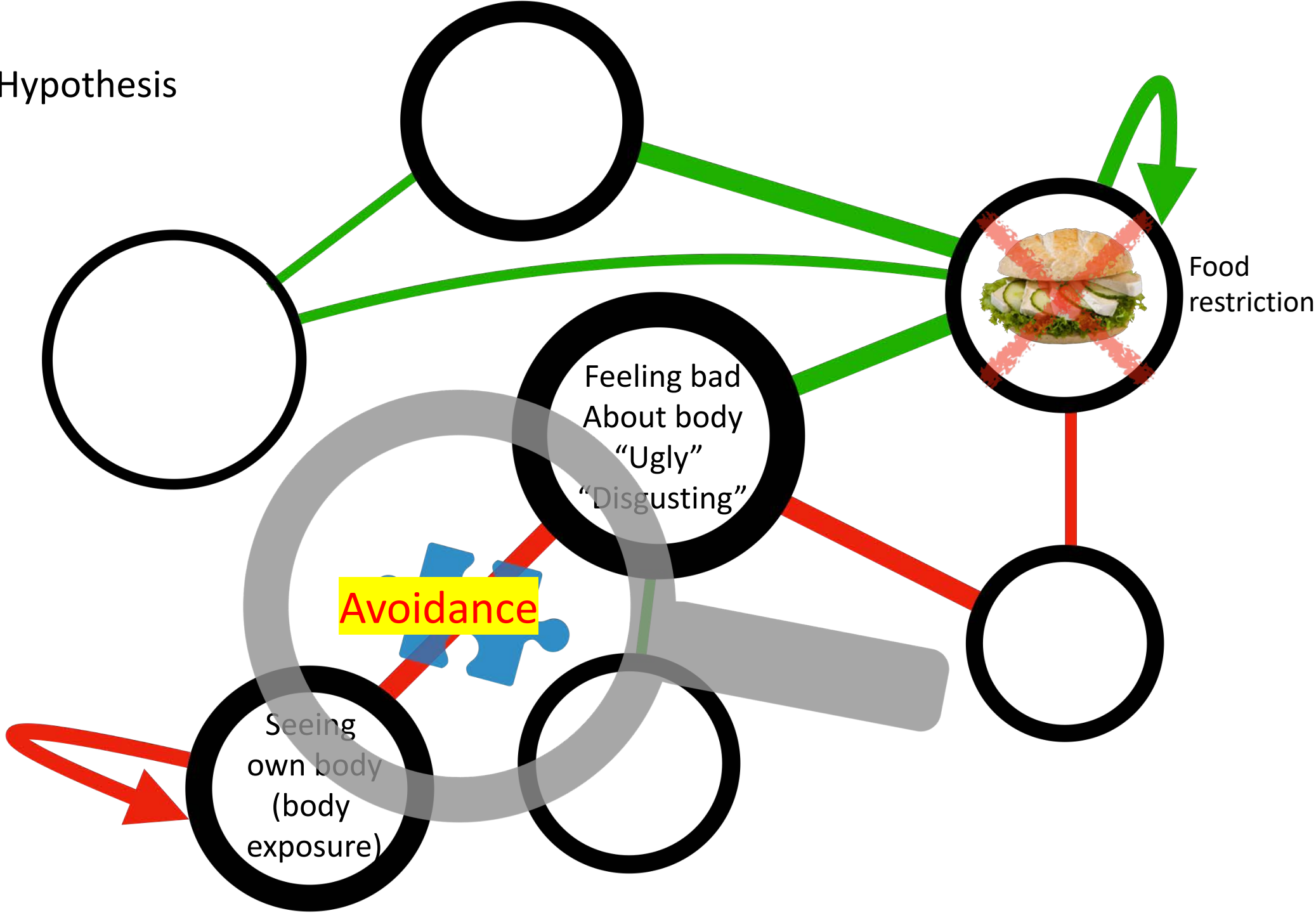
↓ Body Concerns
Body Avoidance



Hypothesis **not** supported

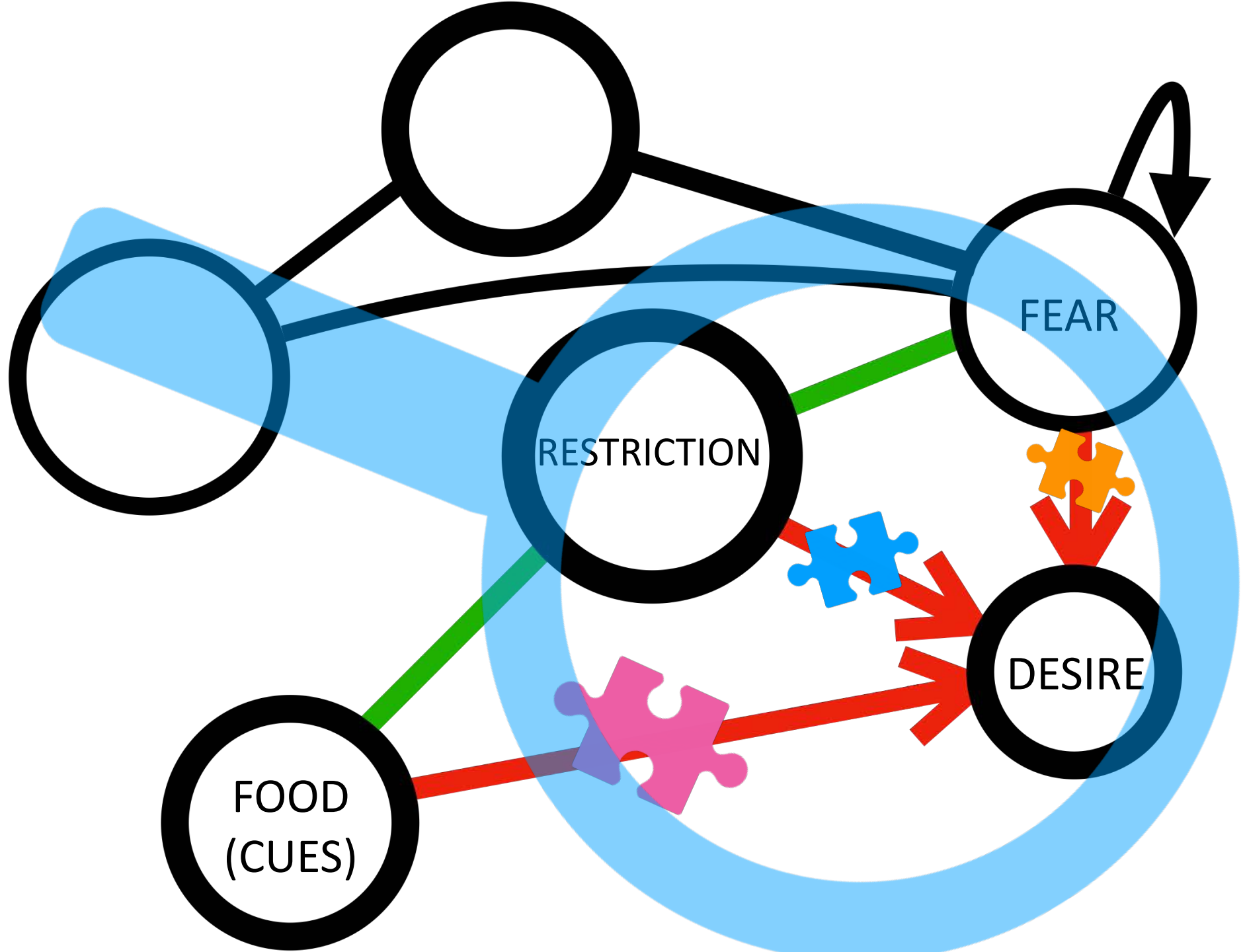


New Hypothesis



Anxiety → Common in all eating disorders

- Appearance-related fears, Weight-related fears, Food-related fears, Eating-related fears, Los of control related fears, Many other fears...
- Fears → Avoidance / Safety behaviors:
- Food restriction, Purging behaviors, (Excessive) exercise, eating rituals, Body Image Avoidance, ...
- Avoidance Is reinforcing/rewarding: anxiety reduction – illusion of control – weight loss
- Are fear and avoidance the driving and maintaining mechanisms in ED/AN?



Experimental model of anorexia nervosa / starvation

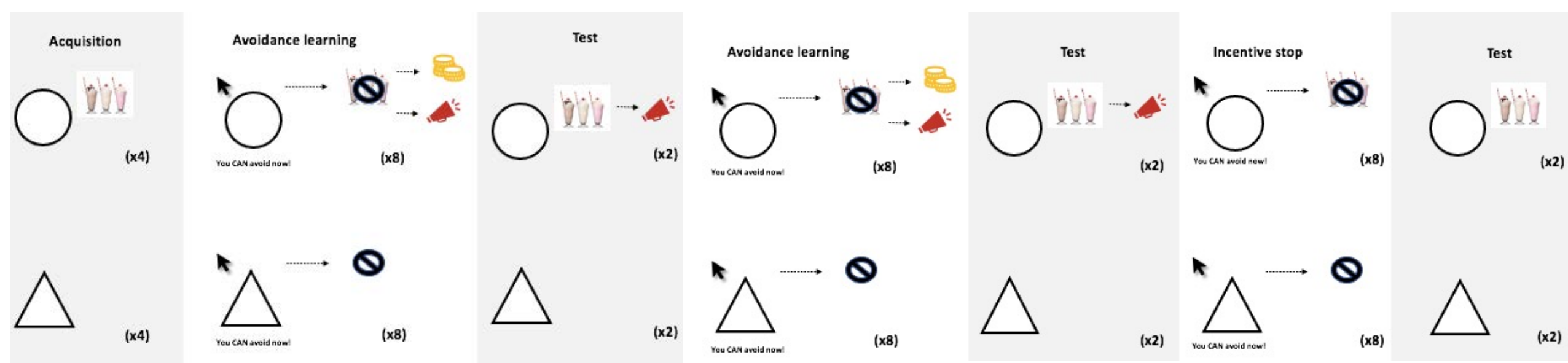
Can we induce 'anorexia-like' avoidance behaviors?
Does fear-induced avoidance reduce the desire for tasty foods?



PhD work of Michelle Spix

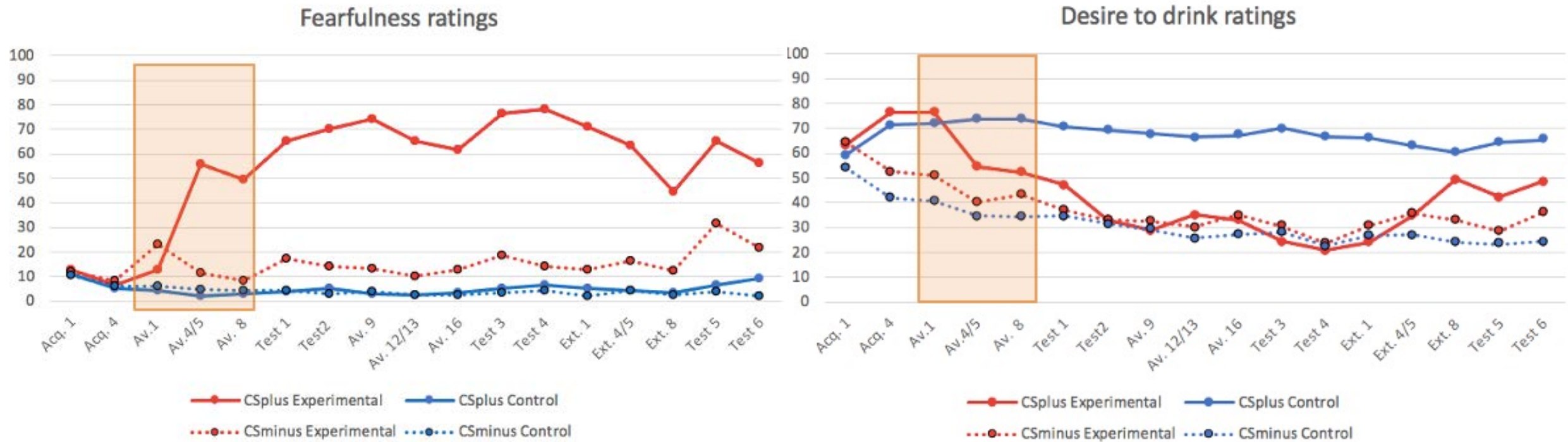
Quite complex conditioning task – healthy students

Learning to avoid tasty food intake

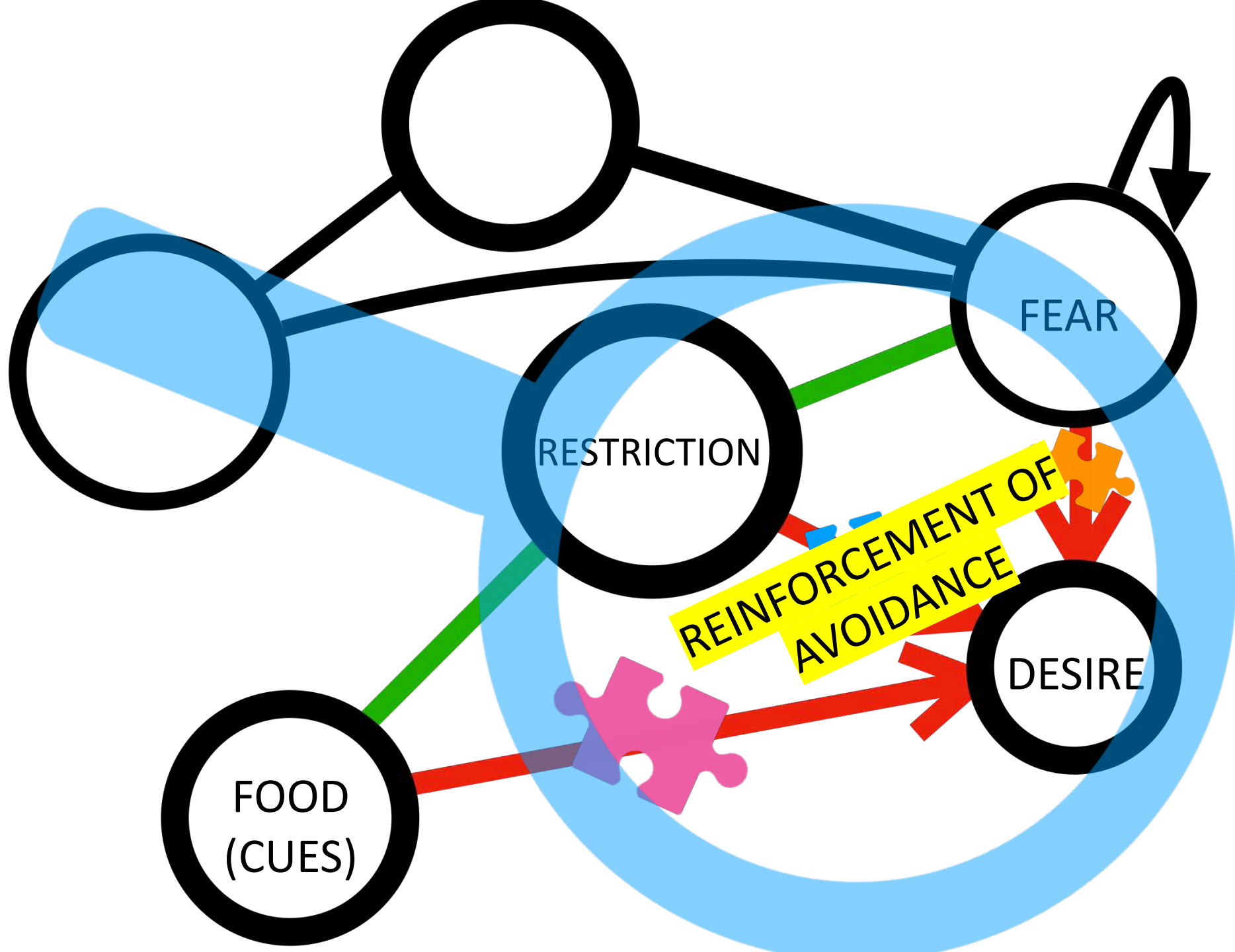


Learn to avoid a sip of milkshake by:

- Reward for avoidance: money
- Punishment for not avoiding: aversive scream 90db in headphone after receiving the milkshake



Induction of Rewards & Punishments → Avoidance → Reduction of desire
 → Intense prolonged (conditioned) fears may extinguish eating desires



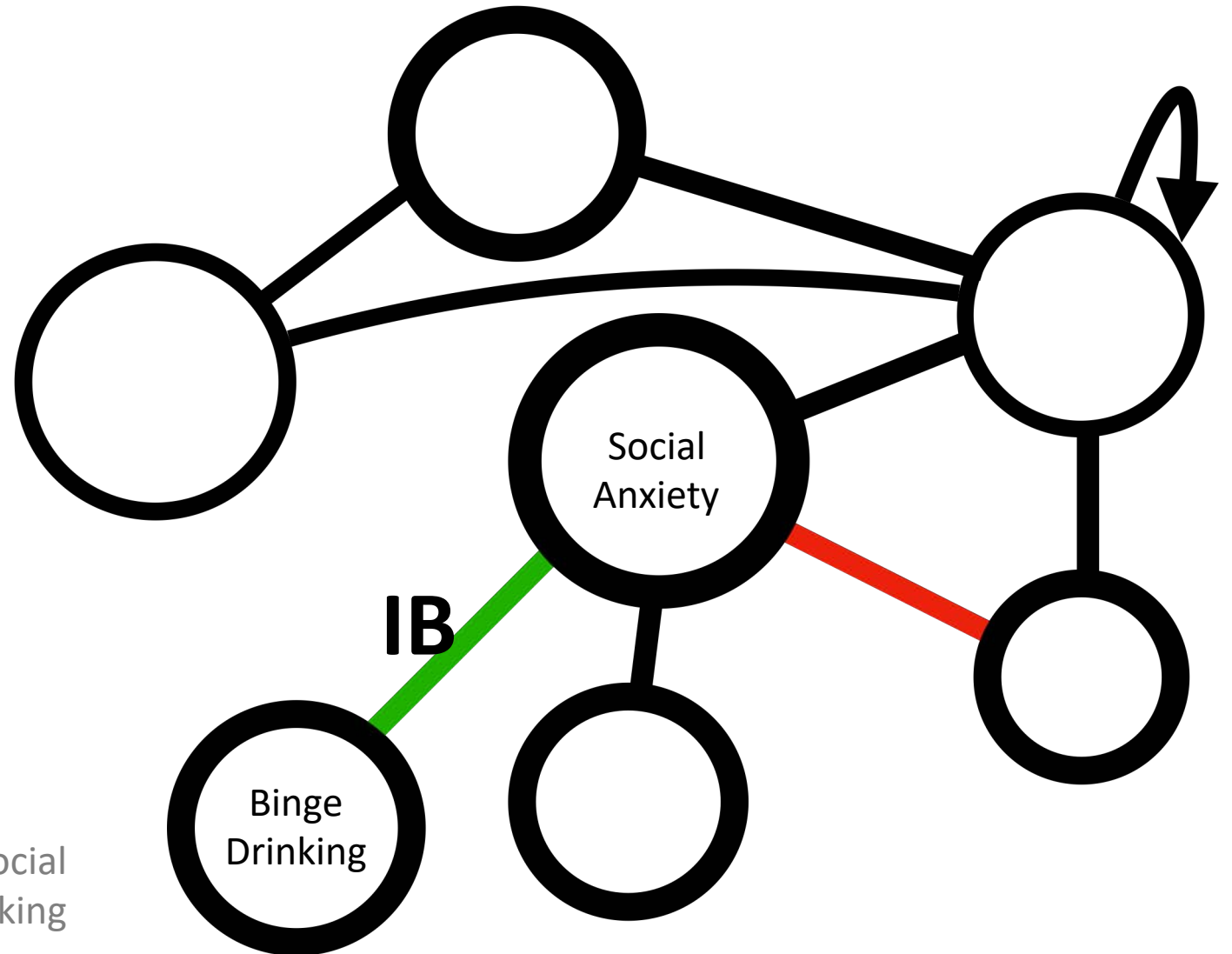
Searching for causes that fuel the network

- Manipulation network dynamics
- Modeling the disorder in a dynamic individual network
- What mechanisms are at work?
- And what happens when we manipulate: induce or reduce?
- Experimental studies within network context/dynamics – exciting new challenge

Problem 4: Transdiagnostic Processes

Symptom networks are transdiagnostic by nature; transdiagnostic processes may explain links between symptoms

Interpretation Bias may link social anxiety and binge drinking

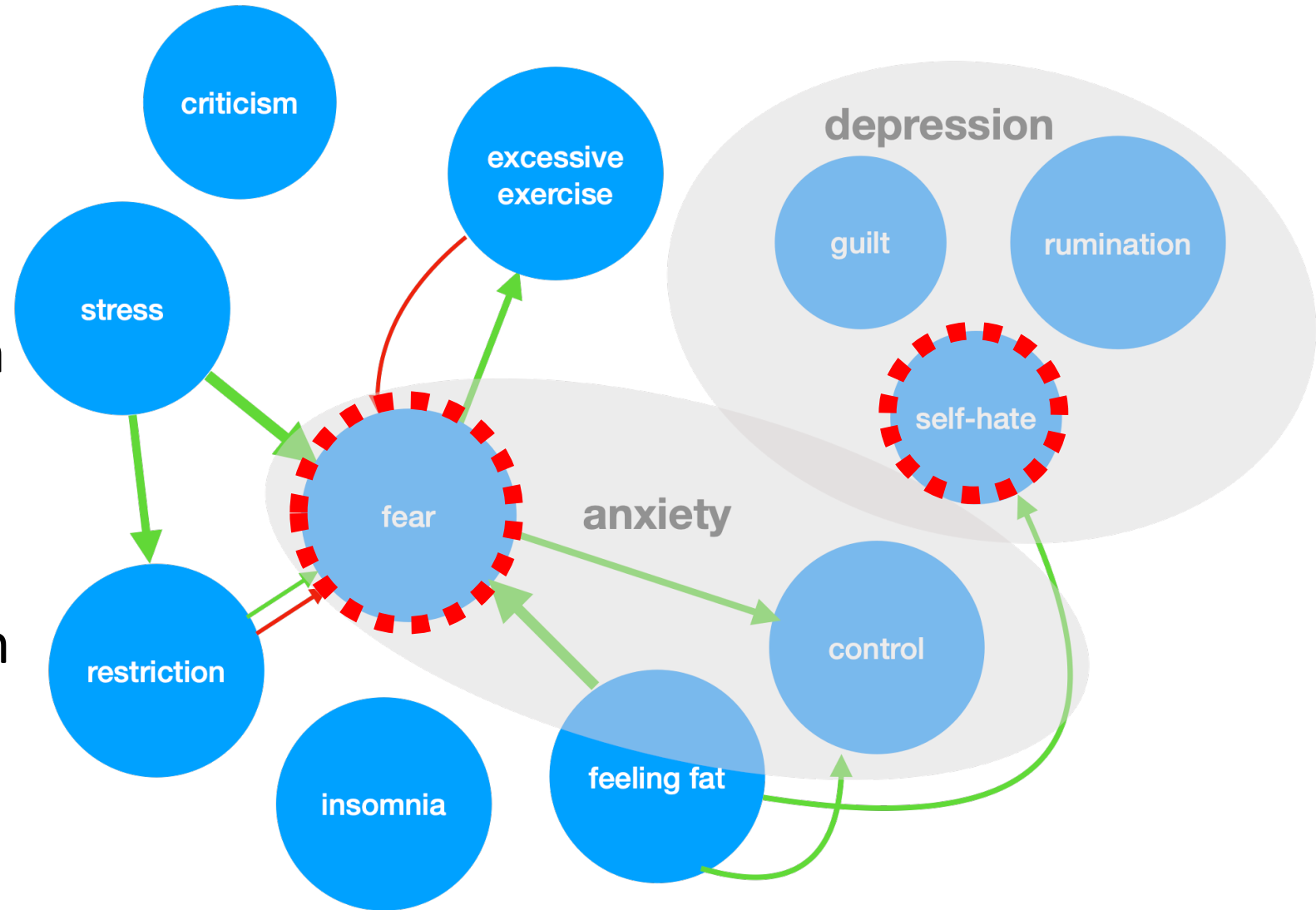


Problem 3: Comorbidity is the rule

‘Disorders’ may co-occur within one symptom network

Bridge symptoms link traditional diagnoses within one network

No artificial boundaries between two or more disorders within one person



Problem 2: Huge Individual Differences

Ann

BMI 17

Binge eating

Depression

Alcoholism

Tess

BMI 16

Purging

PTSD, IoU

Insomnia

Maria

BMI 15

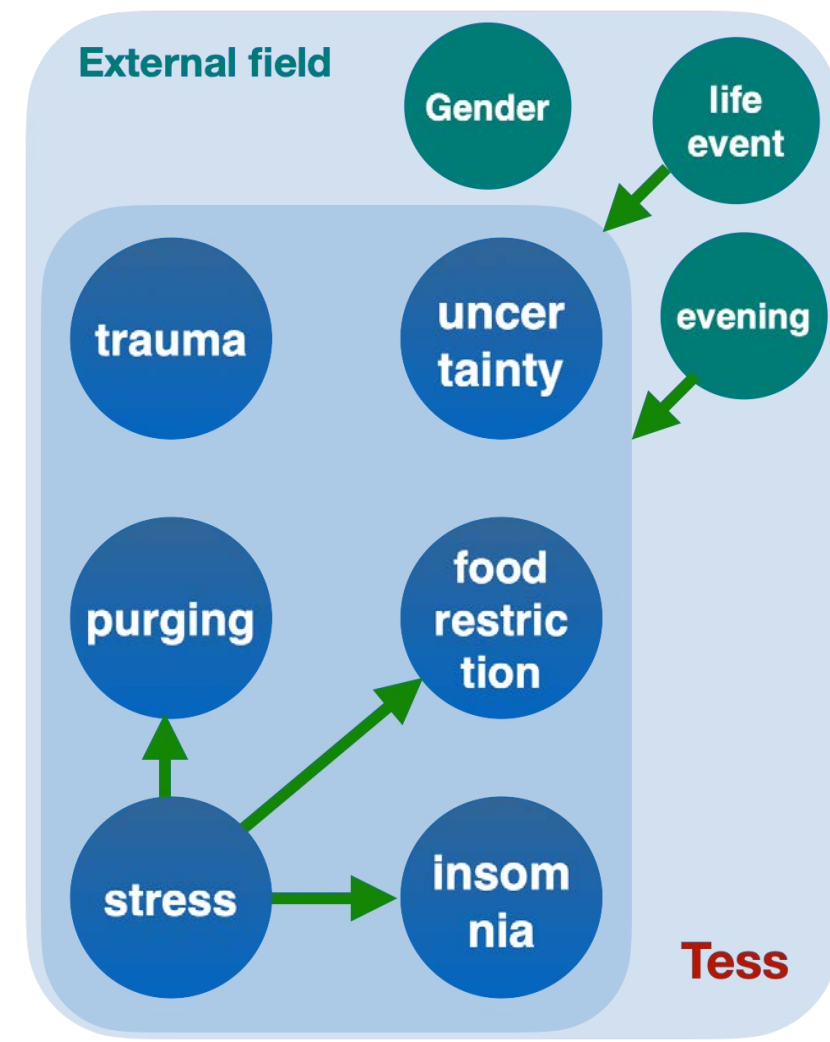
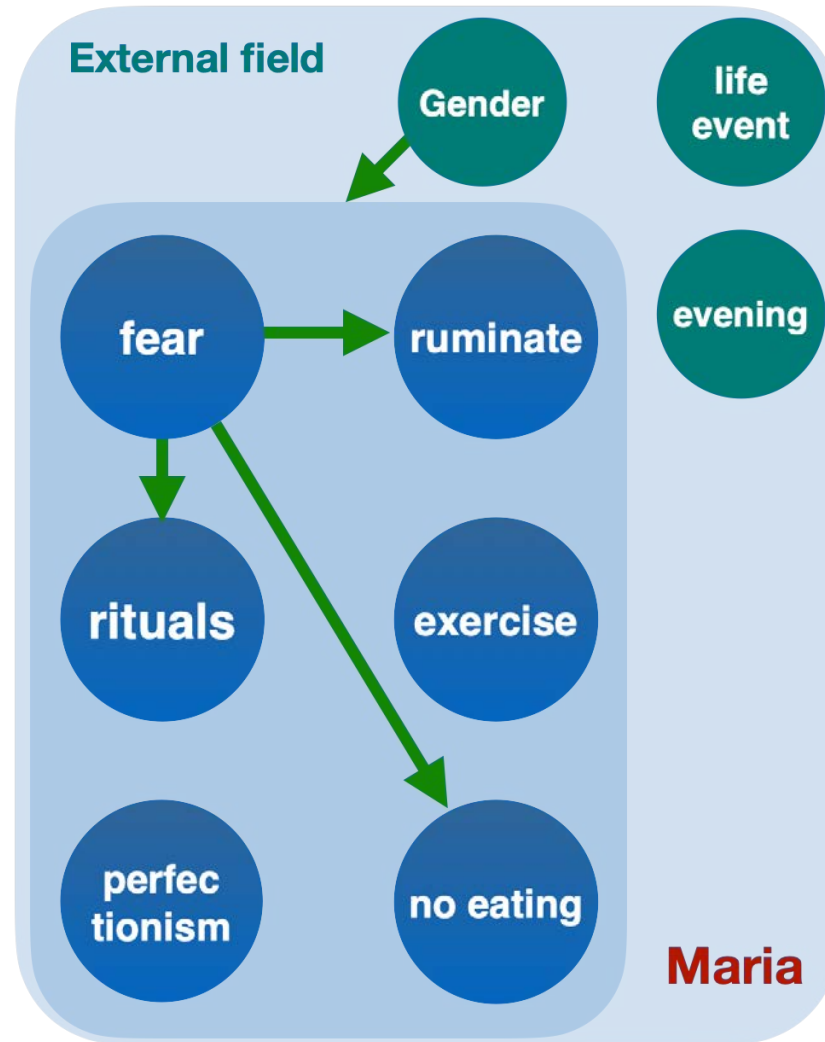
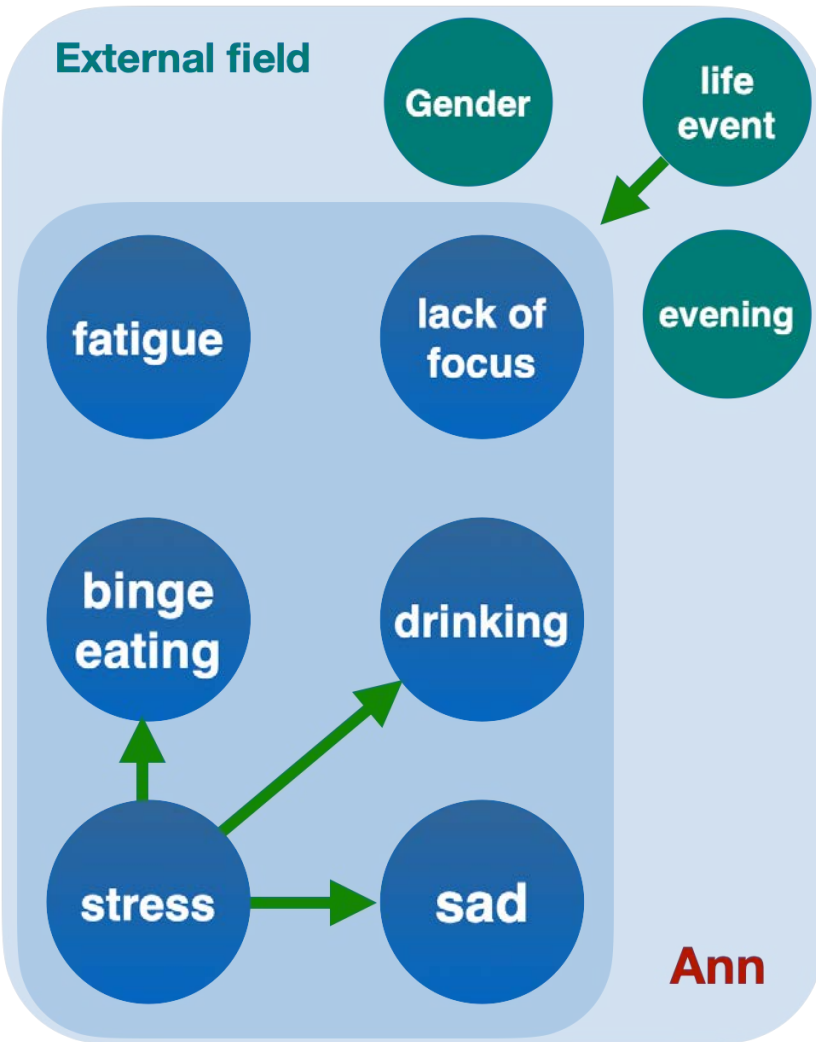
Restriction

Anxiety, OCD

Compulsive Exercise

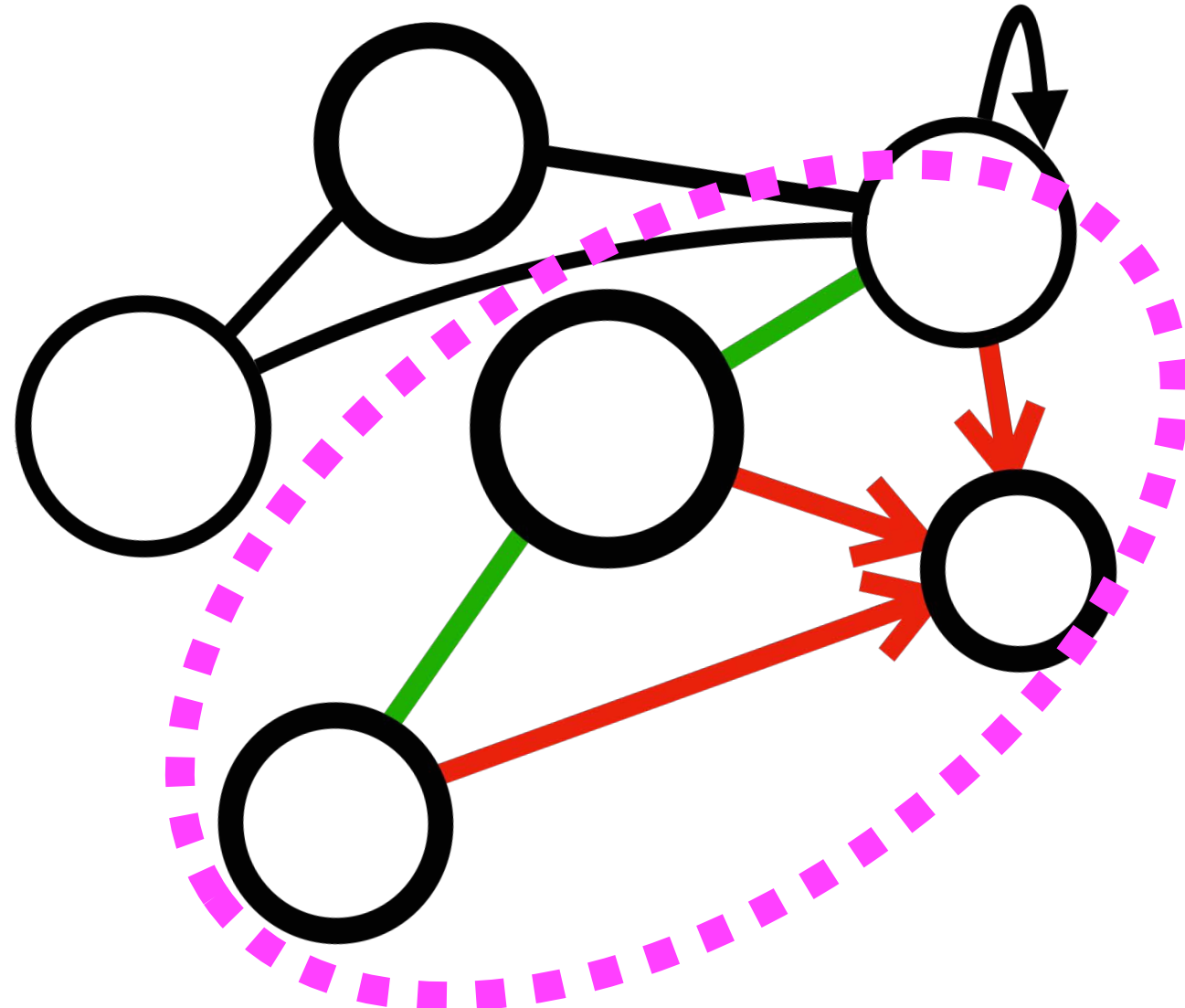
same diagnosis → different symptoms

different symptoms → different networks → different treatments



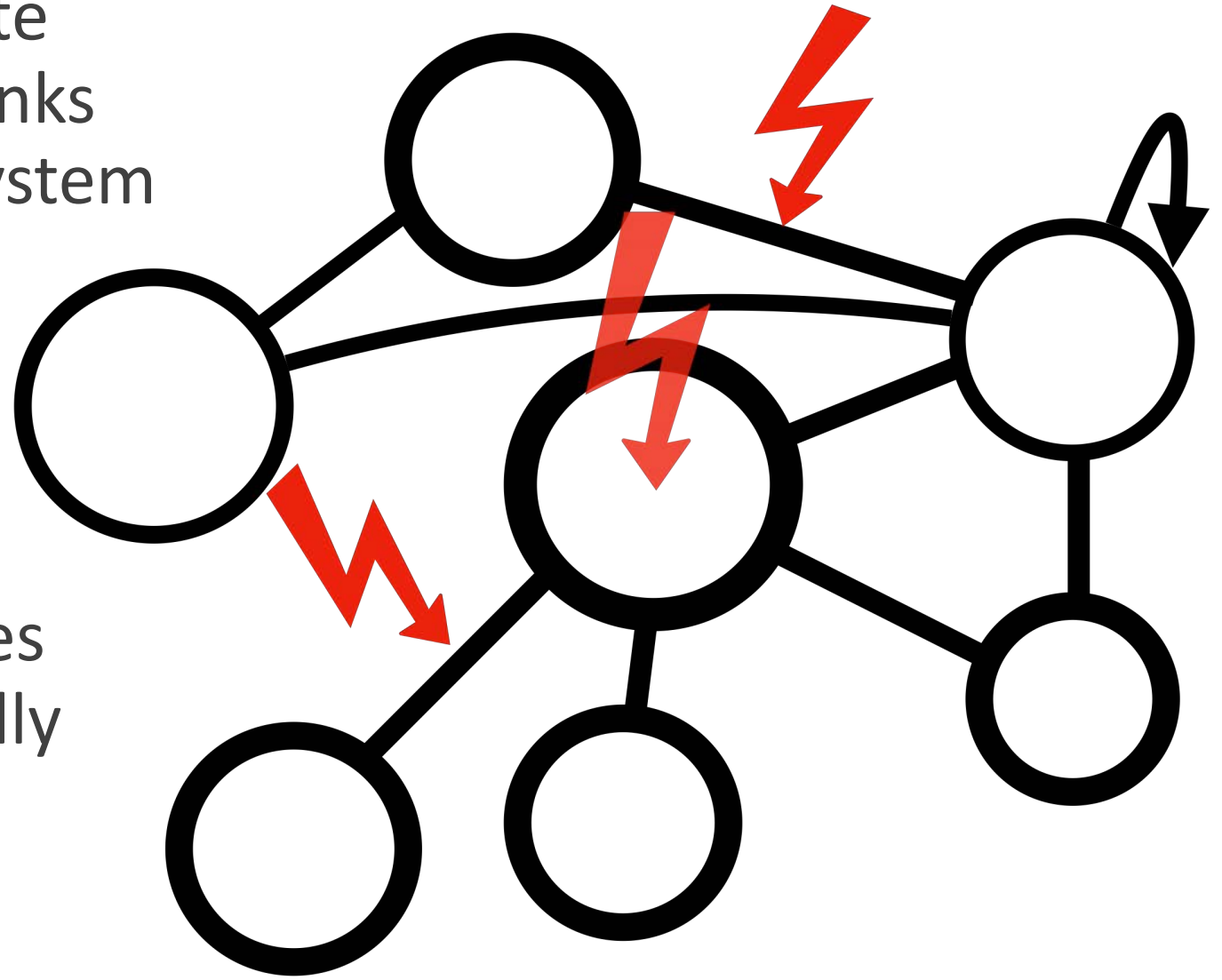
Problem 1: Treatment Results are Dramatic

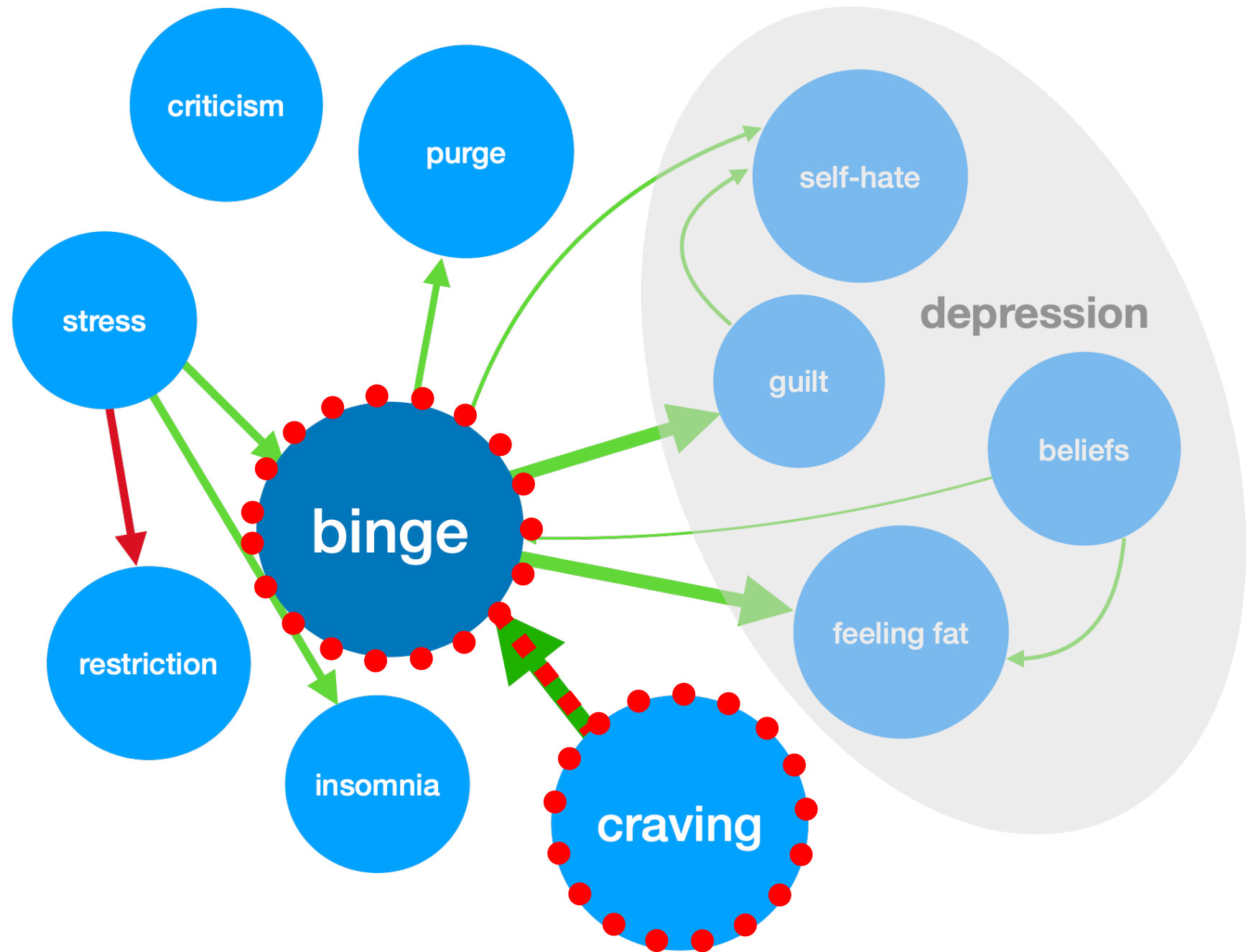
- Networks are highly individual
- Individually tailored, network-informed, treatment
- Independent from DSM diagnosis
- Focus on the network dynamics
- Focus on the – for this individual – critical (most central?) nodes (symptoms) and strongest edges (connections)



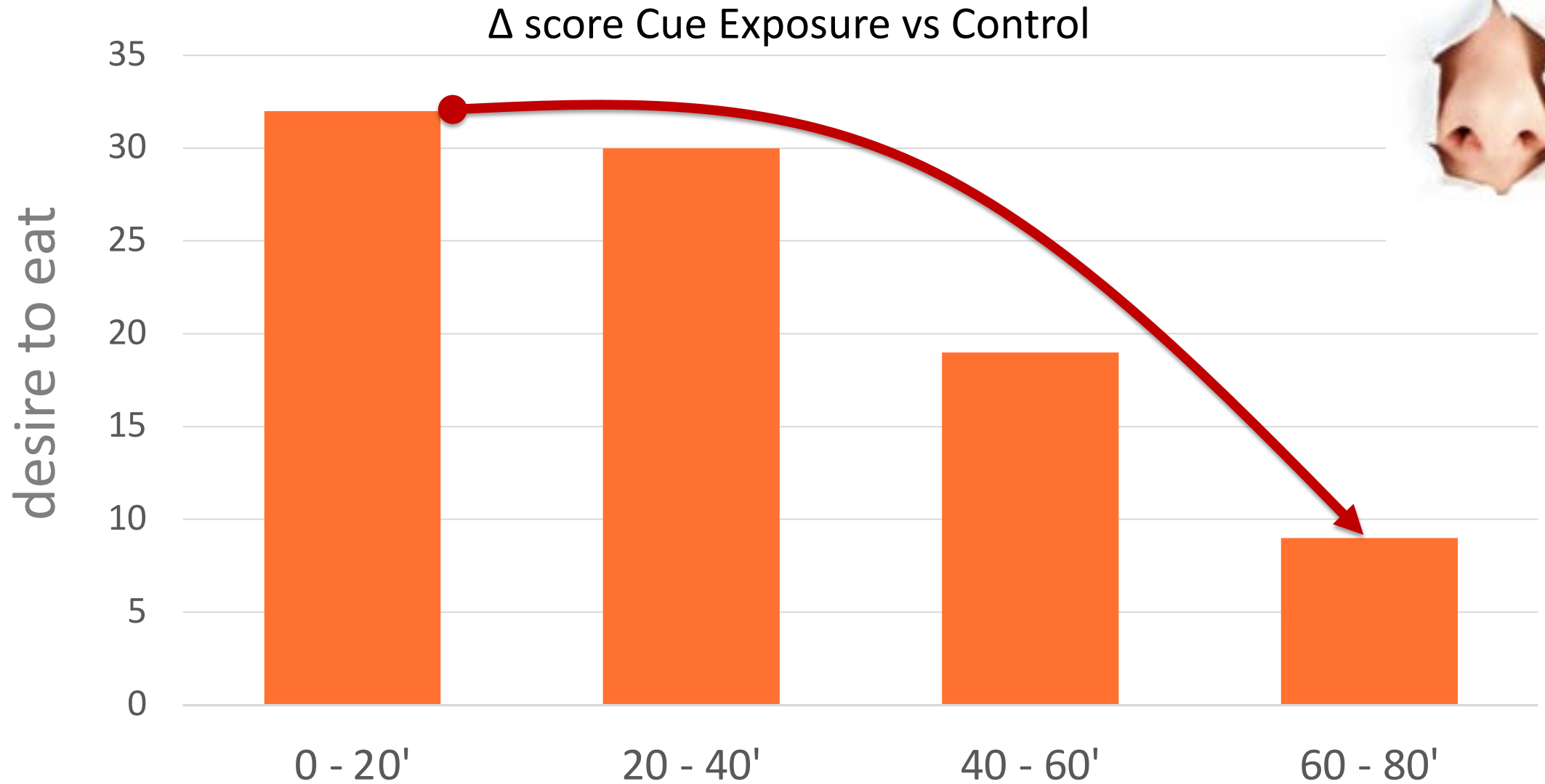
Network-informed Treatment

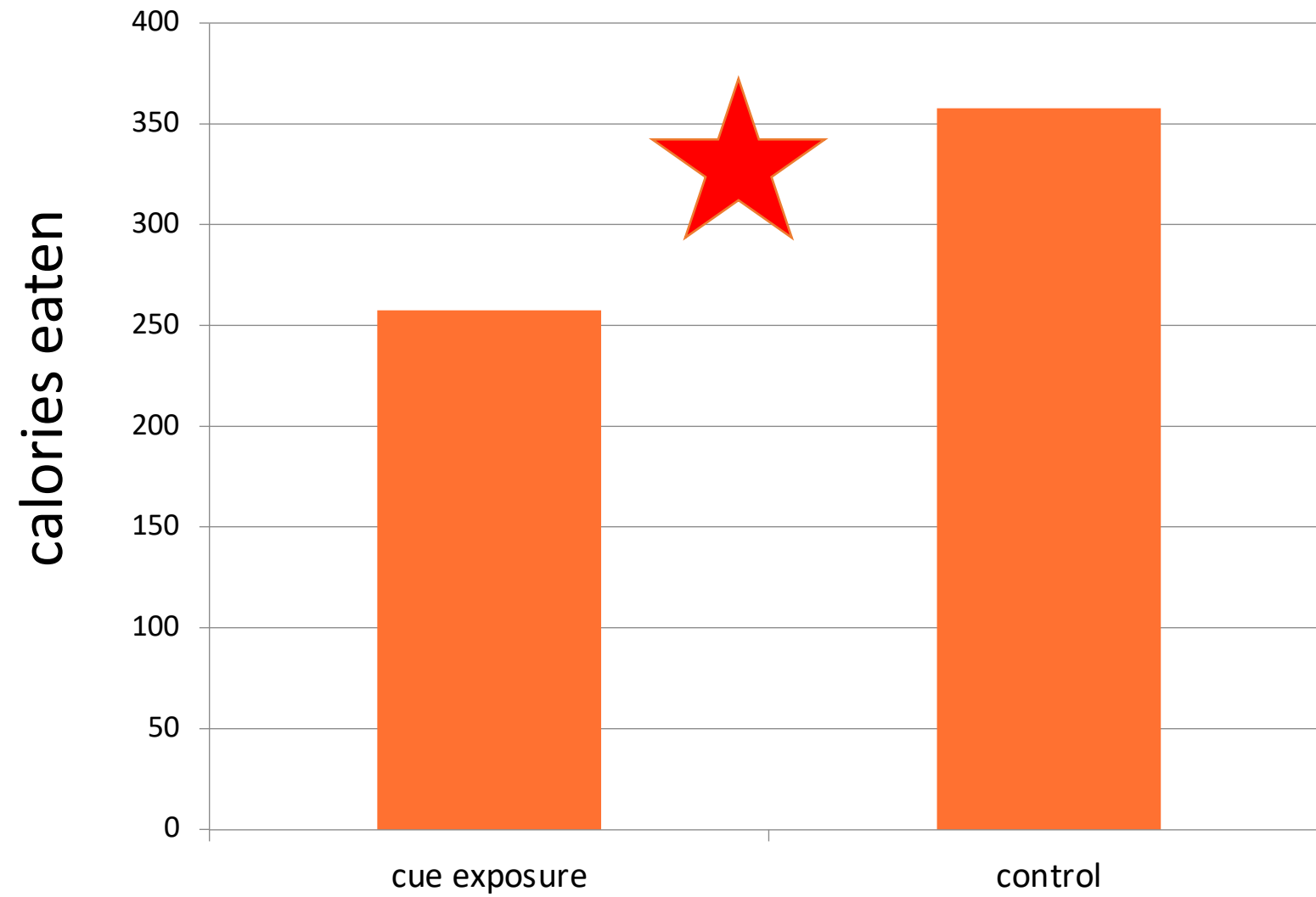
- Intervention goals: deactivate nodes, weaken or dissolve links between nodes, bring the system back to a healthier state
- Use effective (e.g., CBT) techniques
- Difference with traditional interventions: focus on nodes and edges that are empirically determined



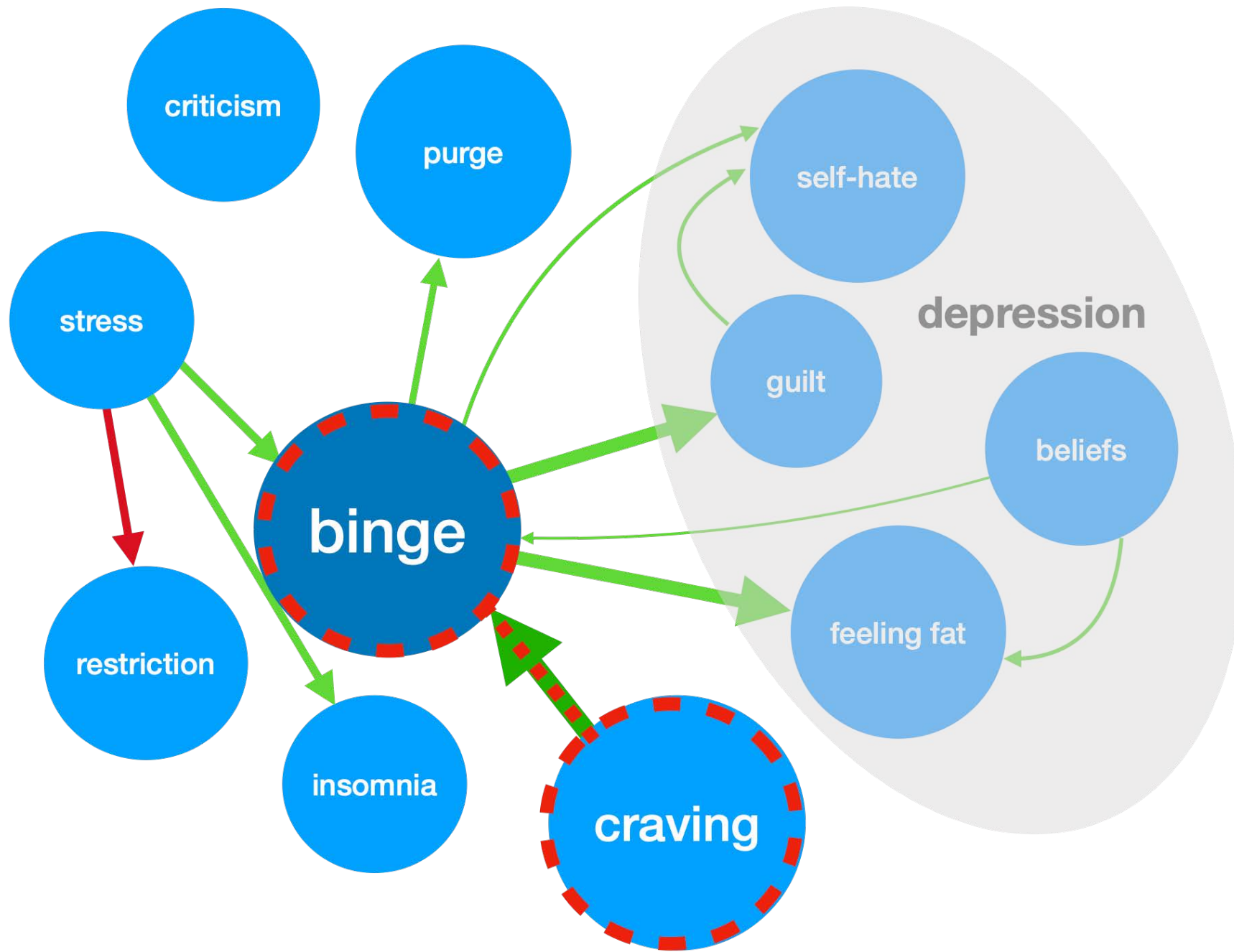


4*20 min exposure

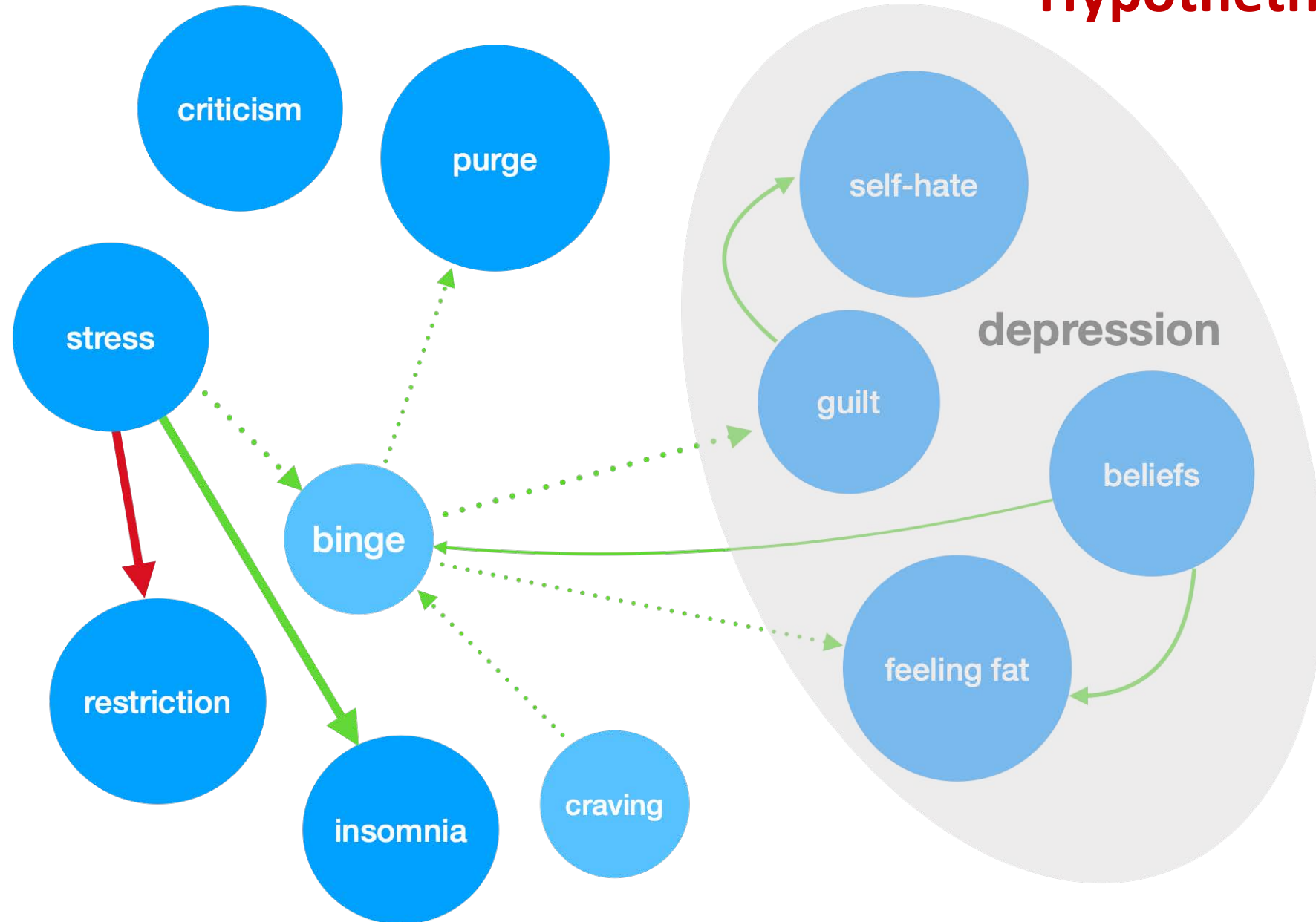




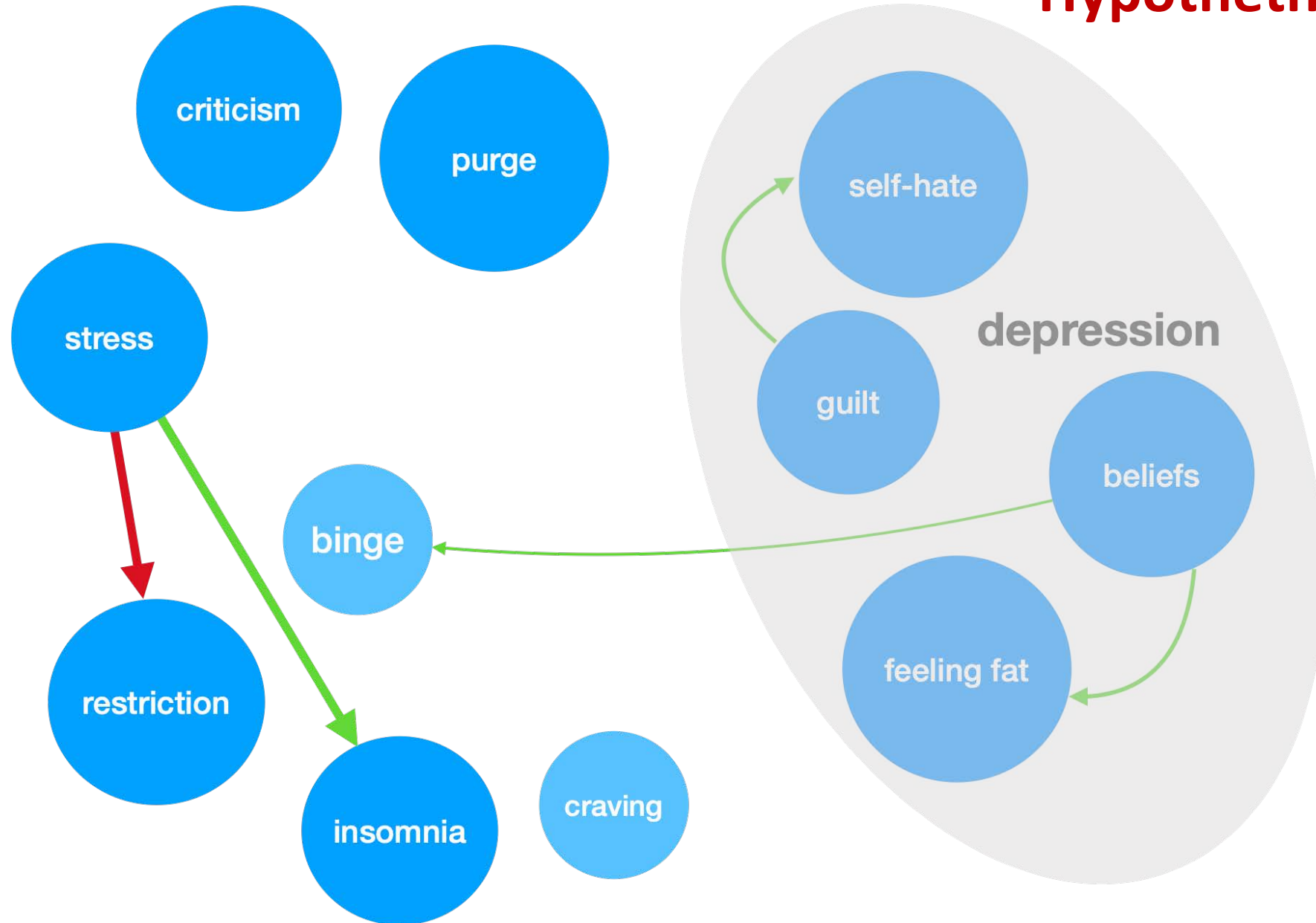
Robust Findings:
desire to eat / cravings / food
intake decrease during
exposure with response
prevention

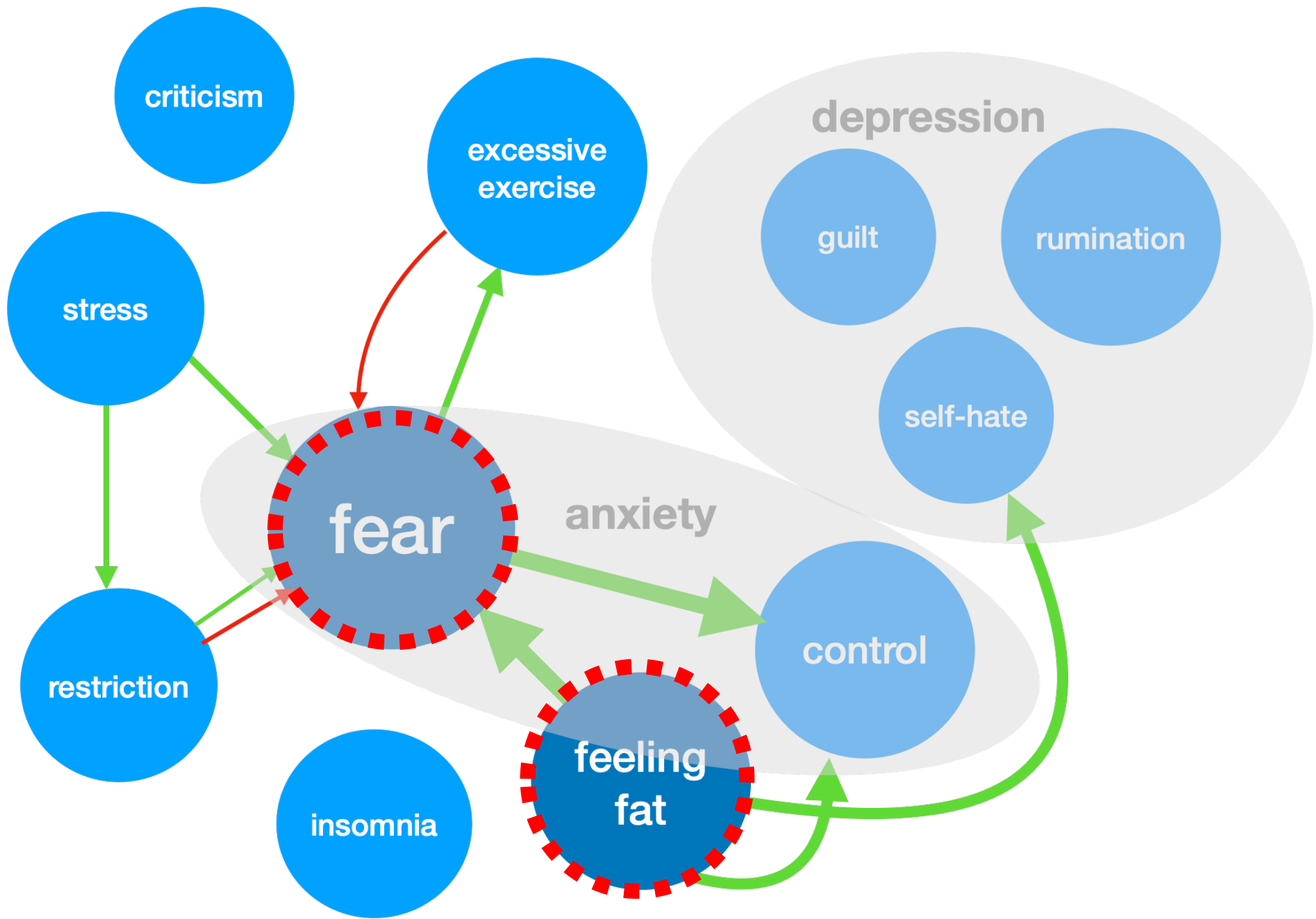


Hypothetical impacts

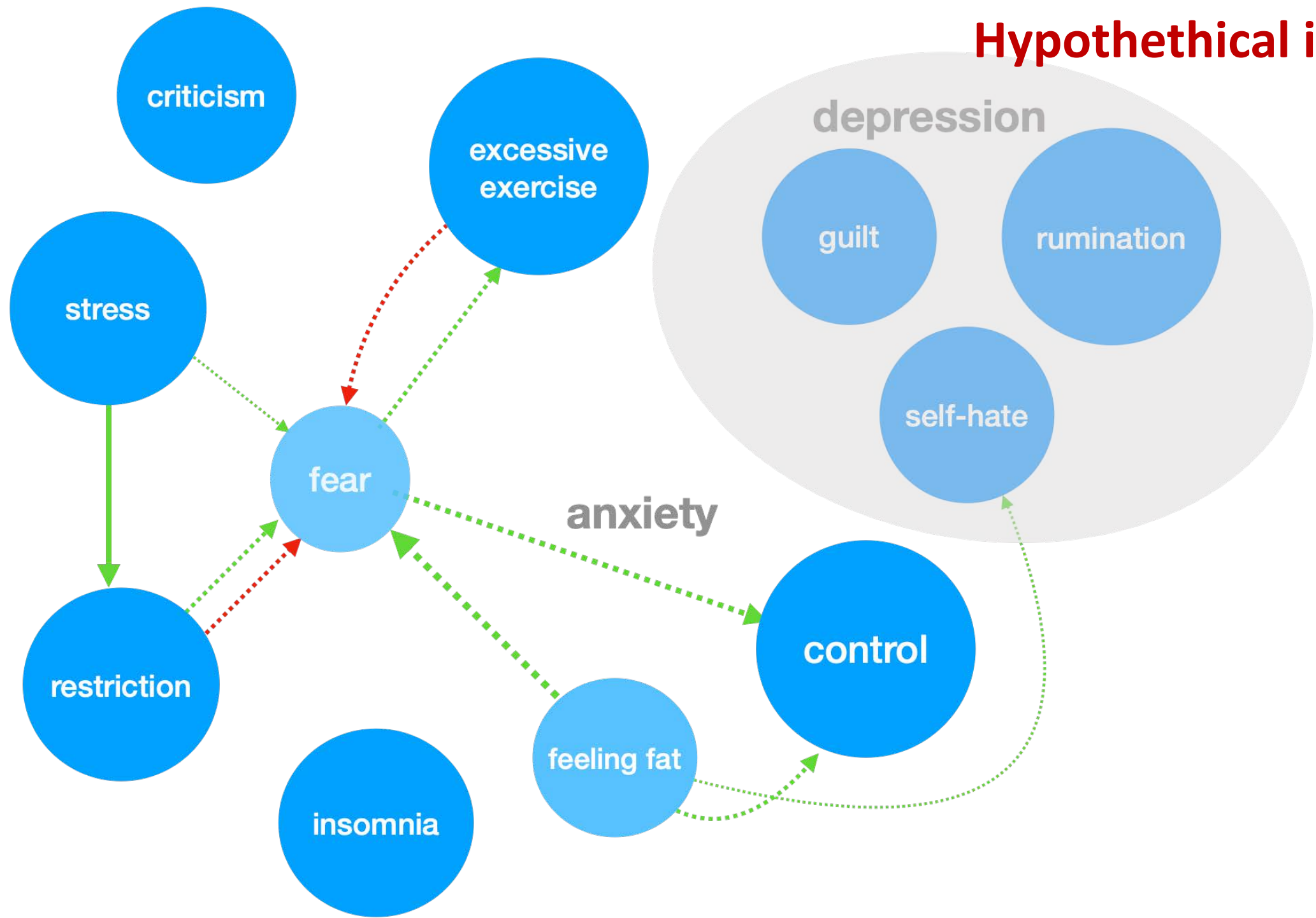


Hypothetical impacts

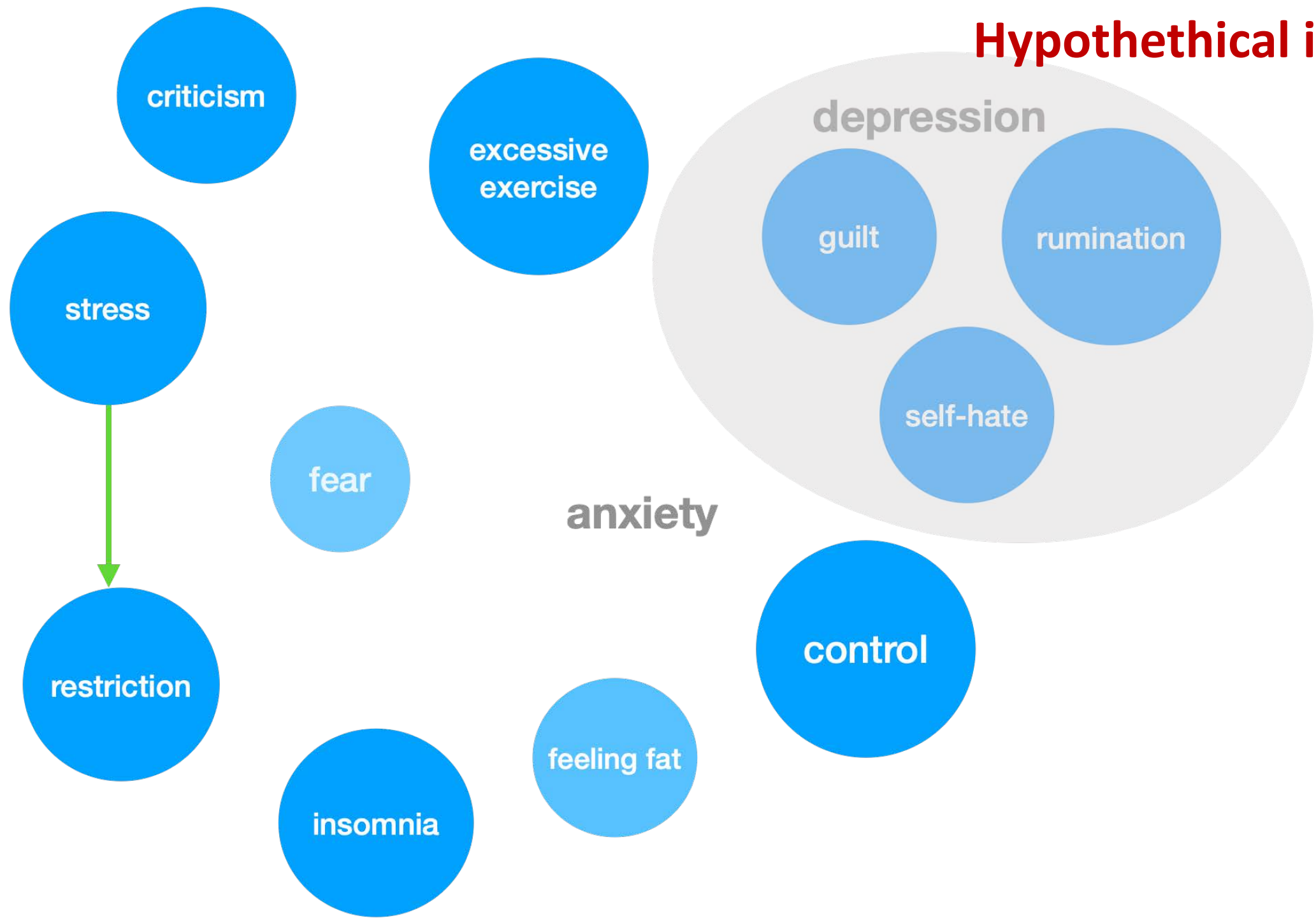




Hypothetical impacts



Hypothetical impacts



**Mental
Disorder
Experts**

**Network
Methodology
Experts**

**New
Science
of
Mental
Disorders
project**

Data Scientists



Dutch Ministry of Education, Culture and Science
Grant – 10 year project

MAPPING

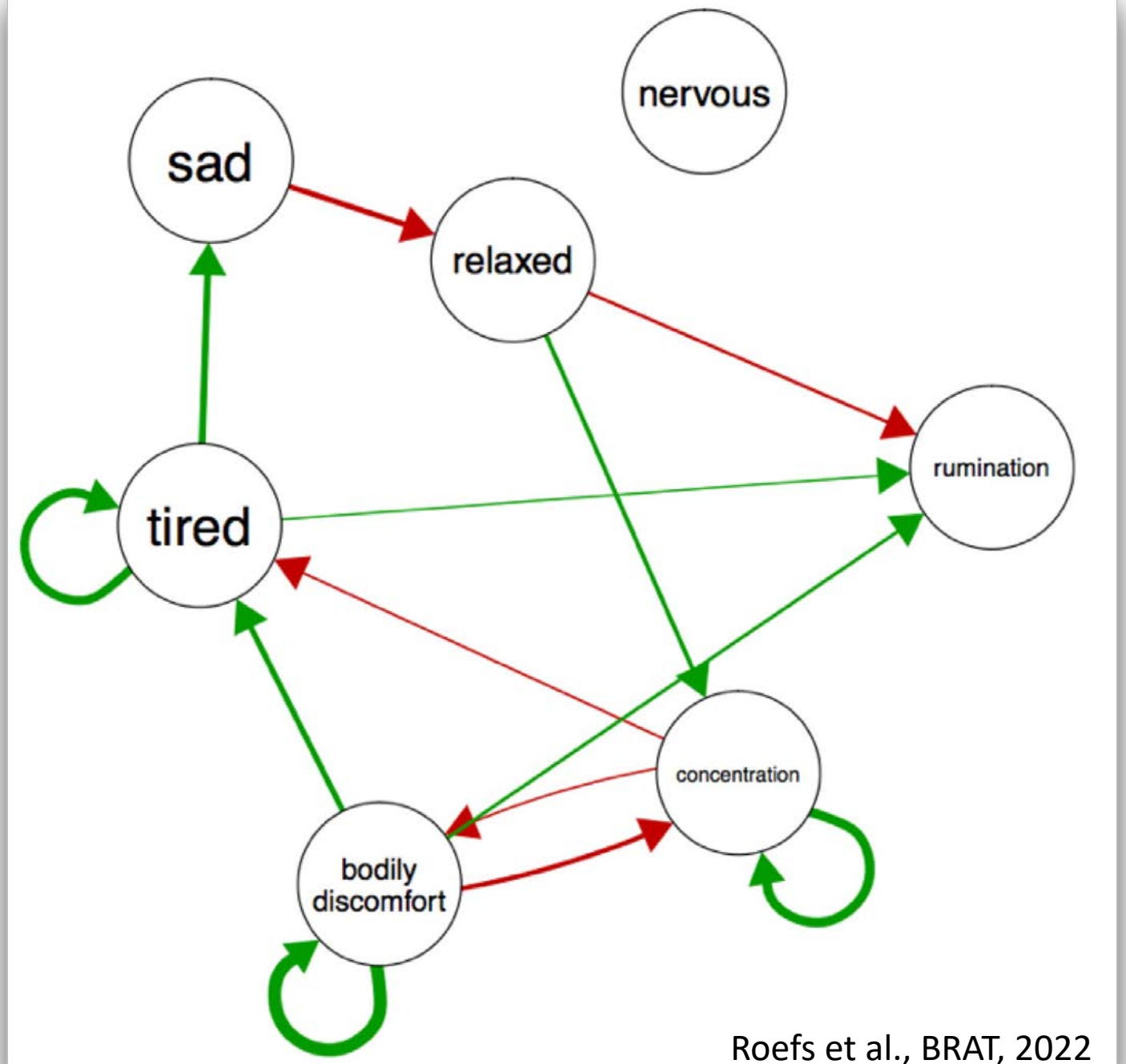
individual symptoms
network

ZOOMING

(transdiagnostic)
mechanisms

TARGETING

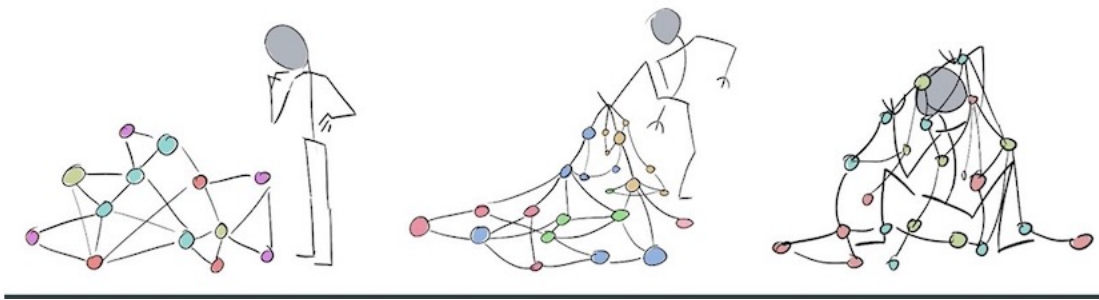
individual
network-informed
treatment



Roefs et al., BRAT, 2022

Problem 1: Treatment Results are Dramatic

- Are personalized network-based interventions more effective?
- Empirical question!
- Future Research will tell



Thank You

