



FLOURISHING, THE BRAIN, AND EMOTIONS IN DAILY LIFE

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ACKNOWLEDGEMENTS



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BACKGROUND

What is flourishing?

- An **individual's perception** that their life is going smoothly.
 - Feeling good and functioning well
- Purpose in life, engagement, competence, positive relationships, contribution to the well-being of others

Why is it important?

- Quality of life
- Achievement



How is flourishing reflected
in brain structure?



How is flourishing
expressed in our everyday
emotions?

WHAT ARE YOU
GOING TO DO?

THE BRAIN AS A NETWORK

Between-person differences in flourishing likely stem from multiple sources

- e.g., aspects of the individual, their context, and interactions between the individual and context

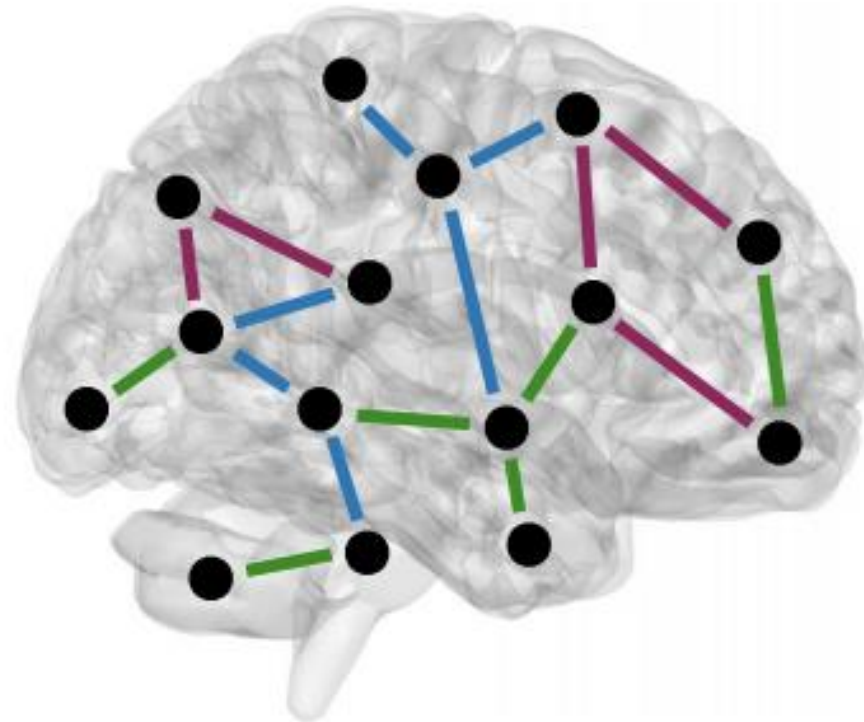
Determining how between-person differences in flourishing are expressed in brain structure

Differences in brain structure could reflect differences in structure that facilitate flourishing and/or differences in structure that result from flourishing

THE BRAIN AS A NETWORK

Network Approach

- Brain is conceived of a network of neuronal ensembles or regions (nodes) interlinked by anatomical wires (edges)

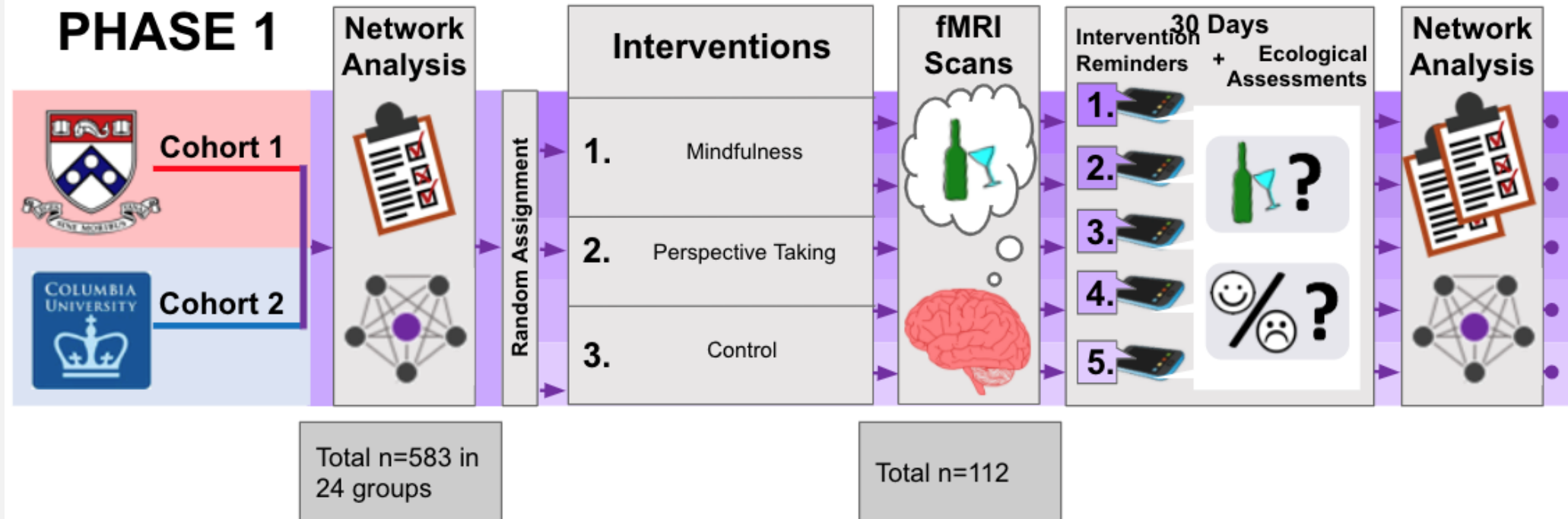


Structural brain network

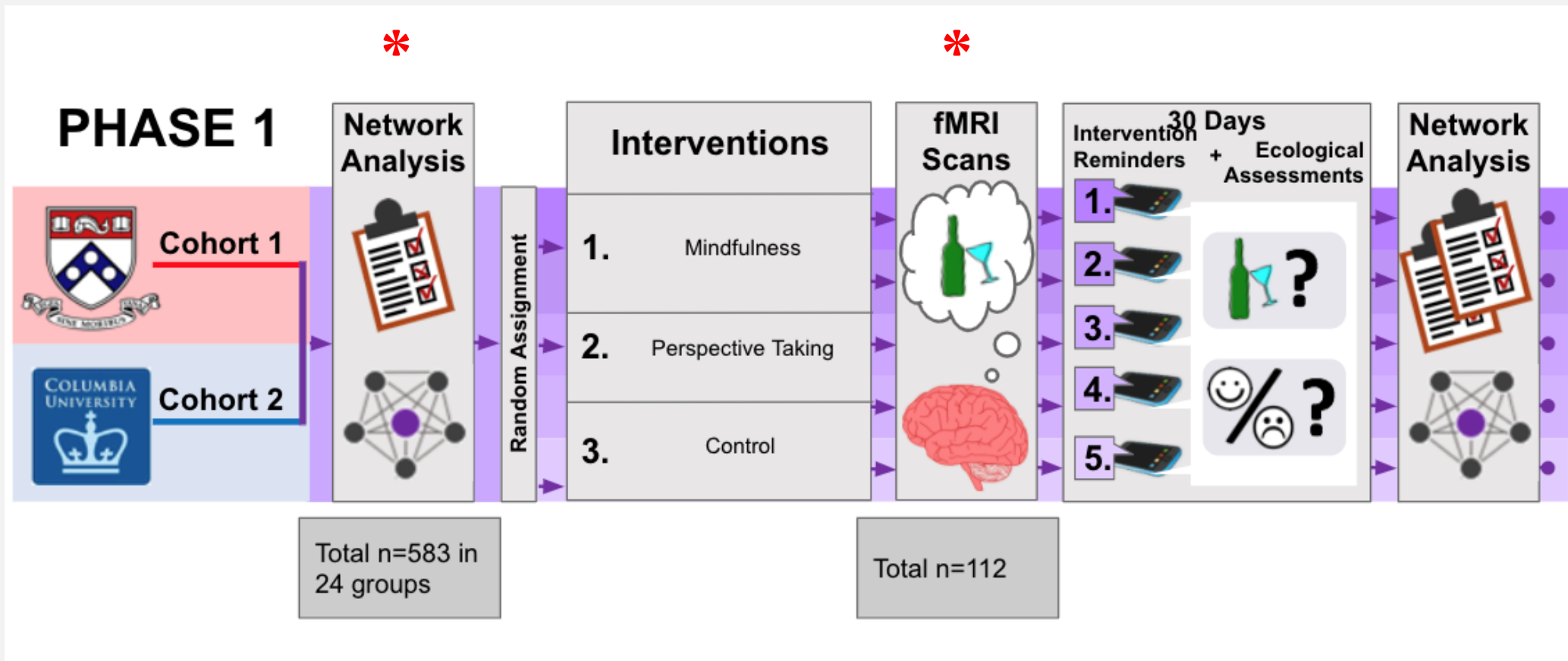
AIM

**To identify the edges that were associated with
between-person differences in flourishing**

METHODS: STUDY DESIGN



METHODS: STUDY DESIGN



METHODS: FLOURISHING SCALE

The Flourishing Scale (Diener et al., 2010)

8-item scales rated 1-7 related to important aspects of functioning including:

- Positive relationships
- Feelings of competence
- Having meaning and purpose in life

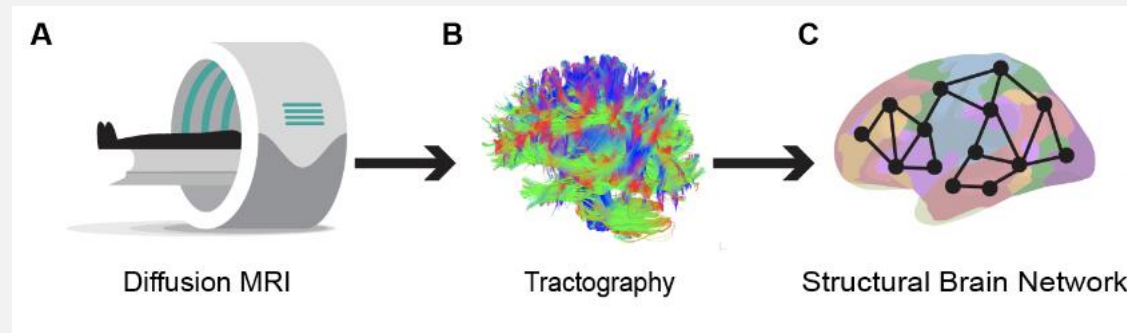
Higher values indicate higher levels of flourishing

FS indicator item
I lead a purposeful and meaningful life
My social relationships are supportive and rewarding
I am engaged and interested in my daily activities
I actively contribute to the happiness and wellbeing of others
I am competent and capable in the activities that are important to me
I am a good person and live a good life
I am optimistic about my future
People respect me

METHODS: BRAIN NETWORKS

Diffusion Weighted Imaging (DWI)

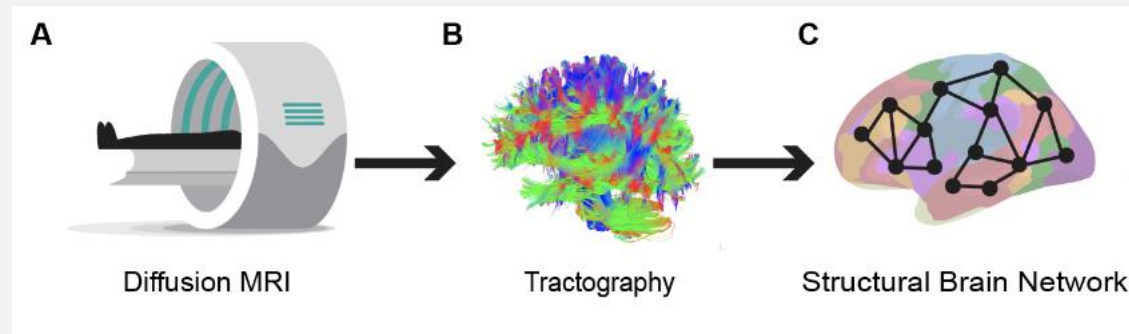
Tractography mapped white matter fiber streamline connections between 214 cortical and subcortical regions



METHODS: ANALYSIS

22,791 connections!

22,791 regressions regressing flourishing onto edge weight

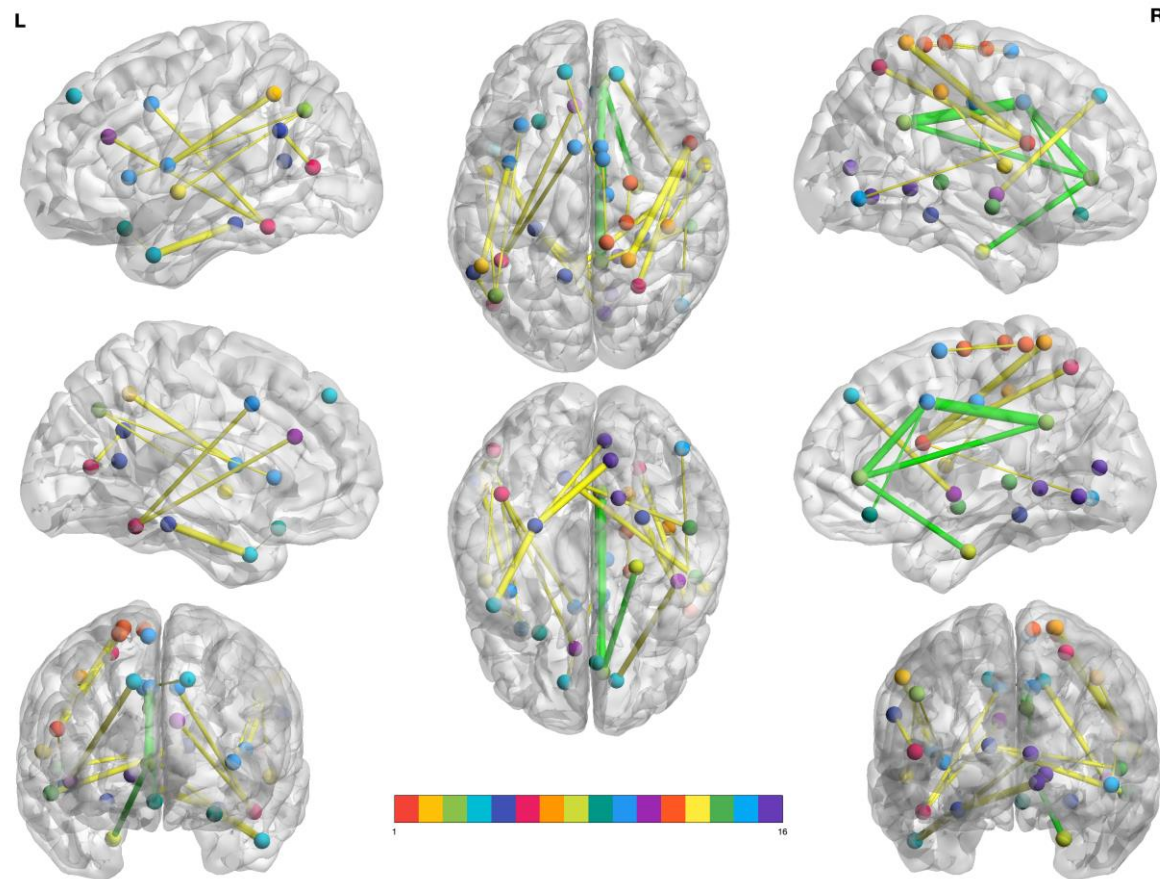


RESULTS

29 edges were associated with flourishing

The vast majority (>80%) were negative edges (yellow) and most of these (>90%) crossed subsystems

Greater distinction between subsystems in people high in flourishing – increased modular organization



CONCLUSIONS

Identified edges in structural brain networks associated with flourishing

Future research: test the increased modularity hypothesis raised by these exploratory results

LESSONS LEARNED



R Studio



New Research



Importance of asking
questions



How is flourishing
reflected in brain
structure?



How is flourishing
expressed in our
everyday emotions?

WHAT ARE YOU
GOING TO DO?

EMOTIONS IN DAILY LIFE

Emotions motivate and organize us to respond to important stimuli and situations

Even negative emotions are functional – e.g., anger can make sure we are not taken advantage of

However, emotions can become dysfunctional if duration is not appropriately regulated

PRIOR RESEARCH ON EMOTION DYNAMICS

In psychopathologies such as depression we know that people experience:

- High average levels of negative emotions
- Persistence of emotions that are inappropriate given situational context

There has been little research done on emotion dynamics in flourishing in daily life (i.e. an individual's perception that they are well-functioning)

EMOTION DYNAMICS

We can capture emotion dynamics by intensively sampling people's emotions as they go about their daily lives



How happy/sad/angry do you feel right now?

METHODS: EMOTIONS

2x/day for 28 days participants responded to the following questions:

Right now, I feel:

Happy

Sad

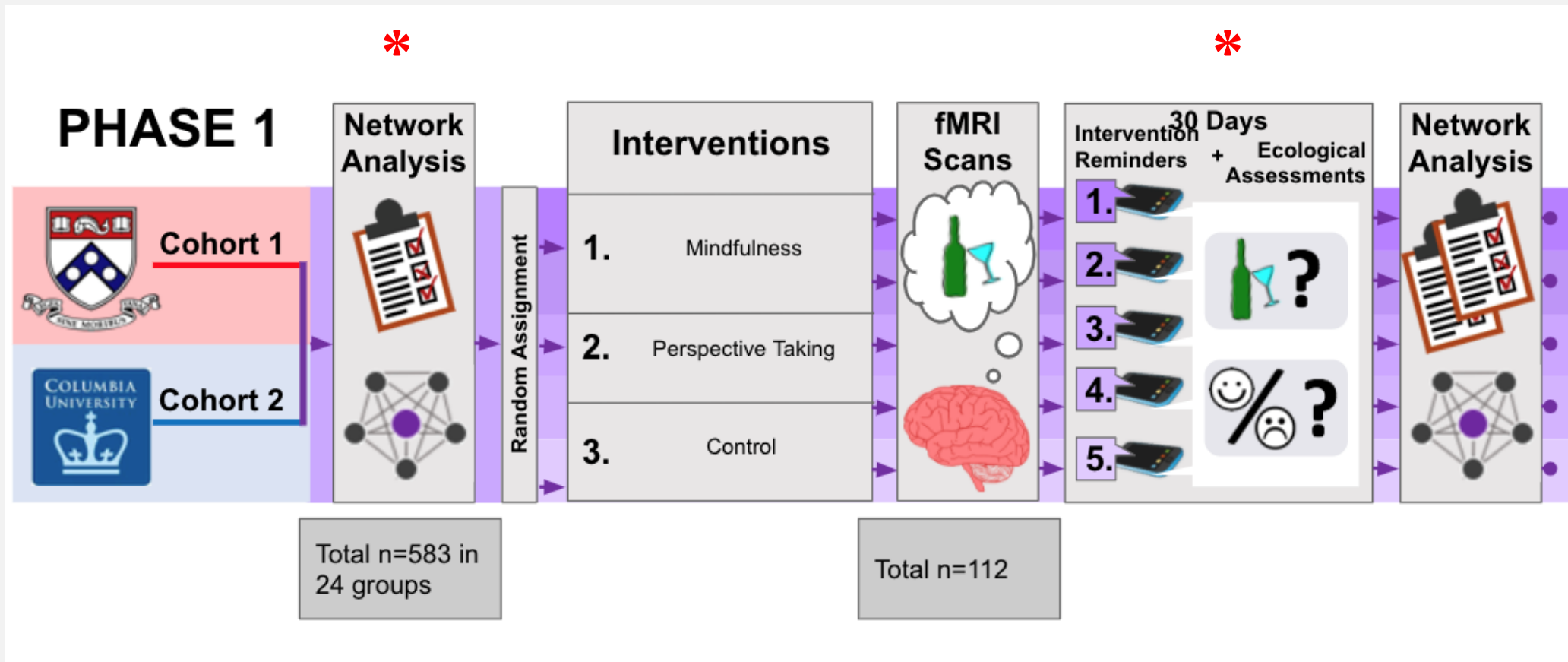
Anxious

Angry

Not at all (1) to Extremely (100)

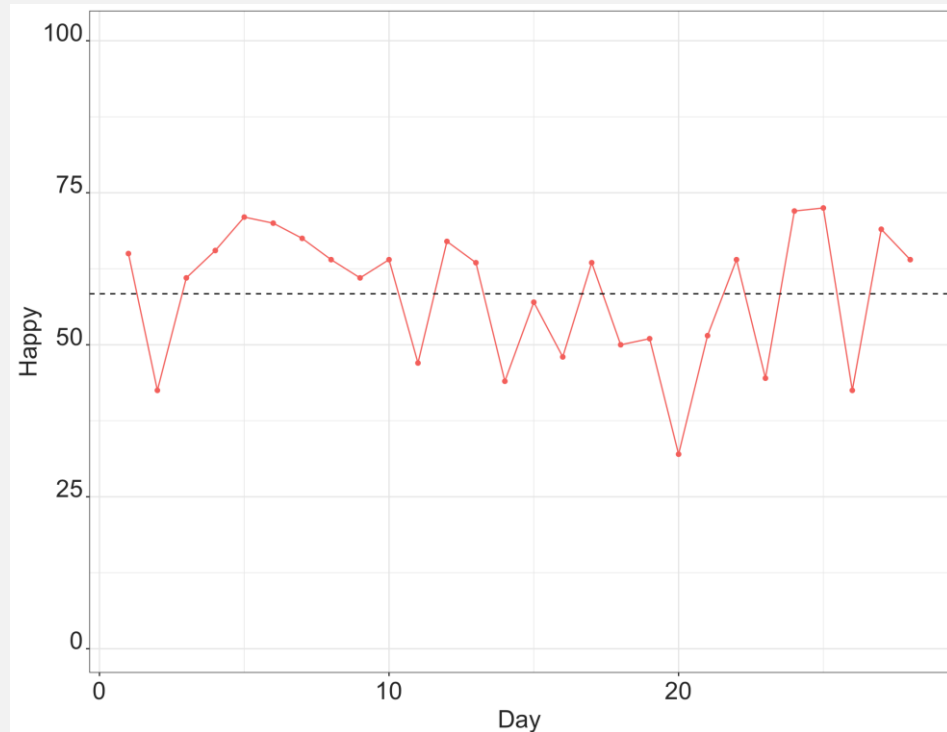
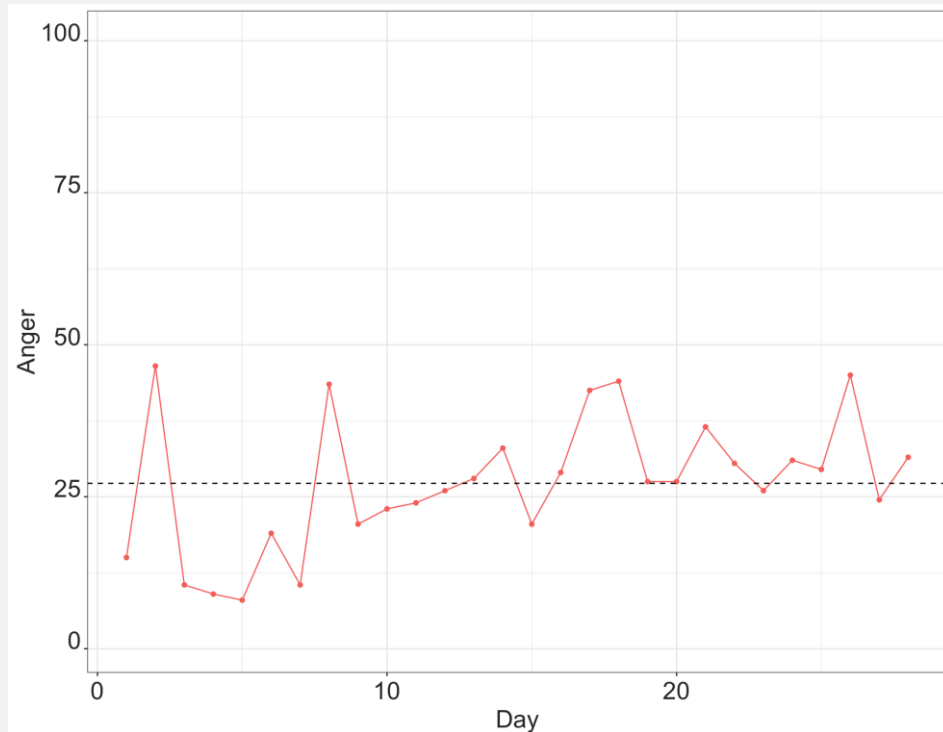


METHODS: STUDY DESIGN



METHODS: EMOTION INDICES

Average intensity: mean of the time series; **Inertia:** resistance to change captured by how predictable your emotion is at the next timepoint based on current emotion



METHODS: ANALYSES

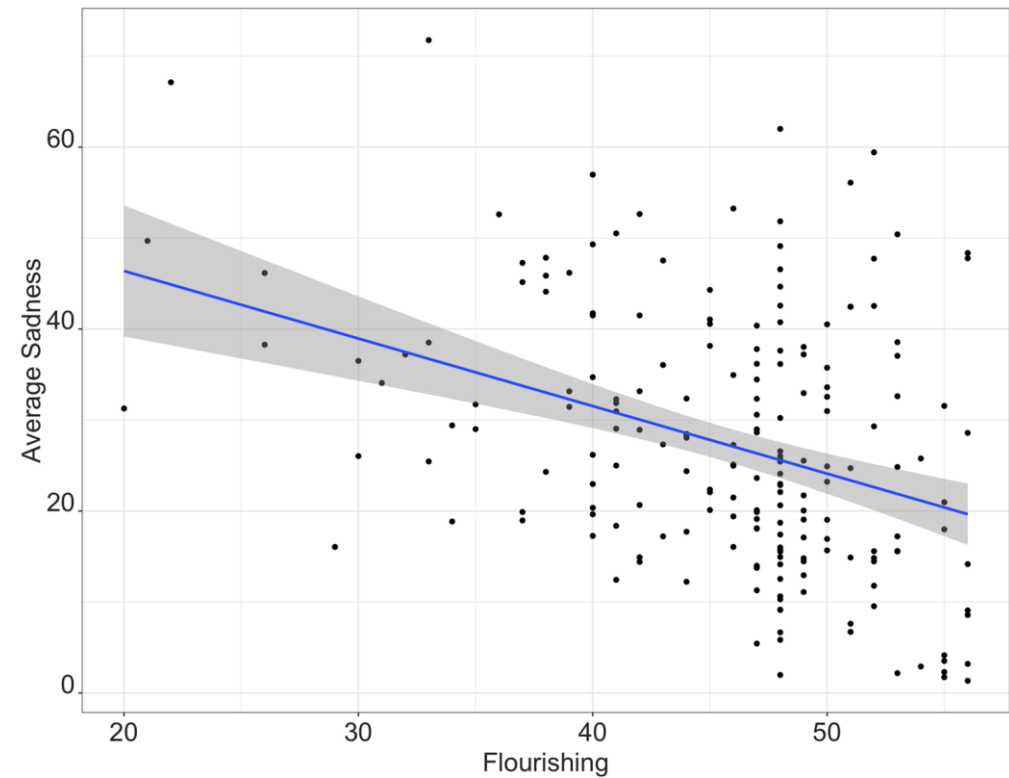
Used regression to examine the extent to which flourishing was associated with average intensity and inertia in happiness, sadness, anger, and anxiety

EMOTION DYNAMICS

- Emotion dynamics are the patterns and trajectories of the fluctuations in emotion (behavioral, physiological, and experiential)
- An example dynamic that we look at later is:
 - **Inertia** - emotional resistance

RESULTS

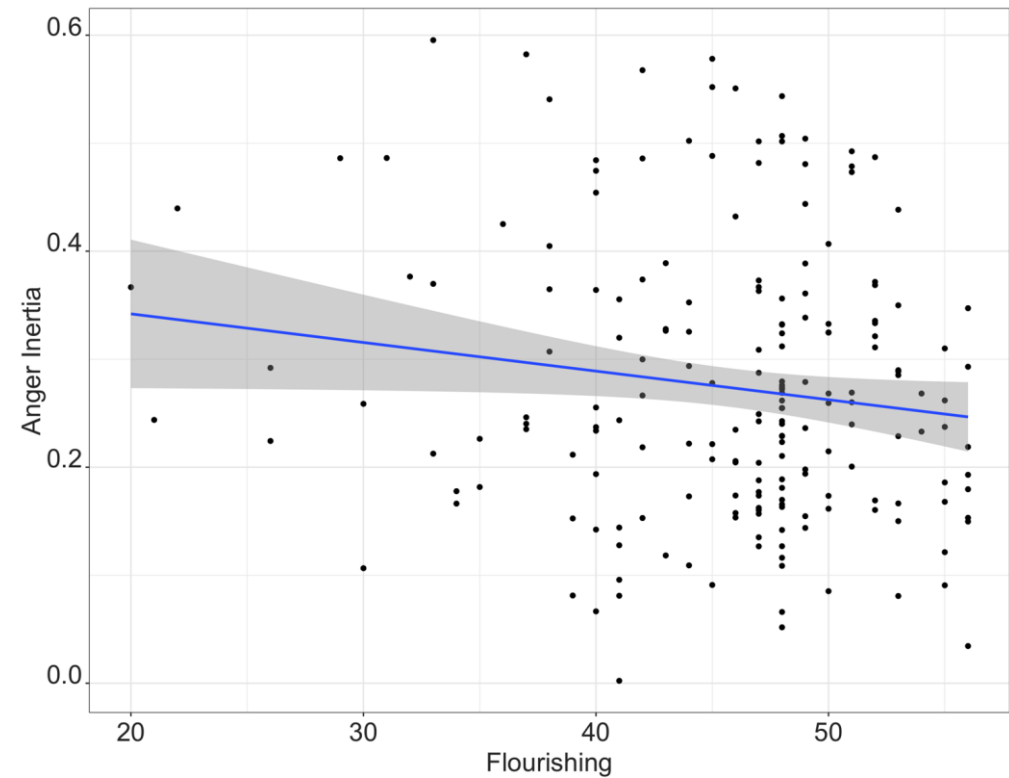
Flourishing was positively associated with higher average happiness across the 28 days, and lower average sadness, anger, and anxiety



RESULTS

People high in flourishing had lower inertia in anger – i.e., anger was less likely to carry over from one day into the next for people high in flourishing

No significant associations between flourishing and inertia in happiness, sadness, and anxiety



POTENTIAL MECHANISMS/NEXT STEPS

- Emotion dynamics are reflective of emotion regulation difficulties
- Non-acceptance - the suppression of emotional experiences perceived as undesirable
 - amplifies undesired emotions
- By comparing emotion dynamics in people with high vs. low levels of non-acceptance, we can better understand how to reduce poor psychological outcomes linked with high non-acceptance

CONCLUSIONS

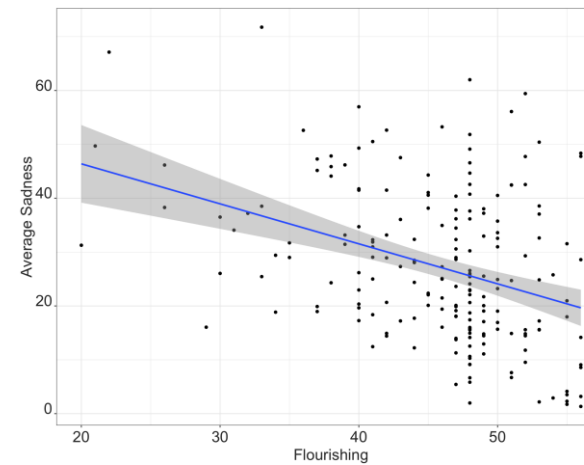
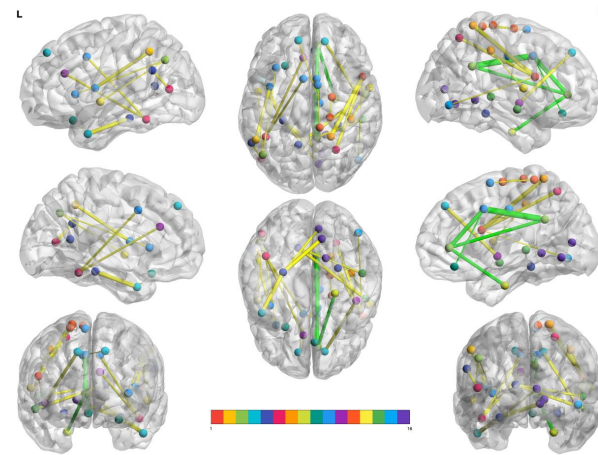
Flourishing is associated with high average positive and low average negative moods in daily life

People high in flourishing have less carry over in anger from one day into the next

Next steps are to determine the mechanisms associated with the observed emotion dynamics. I am particularly interested in emotion regulation strategies

OVERALL CONCLUSIONS

Together, we provide insight into the brain structure and daily life emotion correlates of flourishing



THANKS! Questions?

FINAL ACKNOWLEDGMENTS

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