

Vagal Tone and Social Connection Interventions

SPSP 2011

Friday, Jan. 28

Bethany Kok



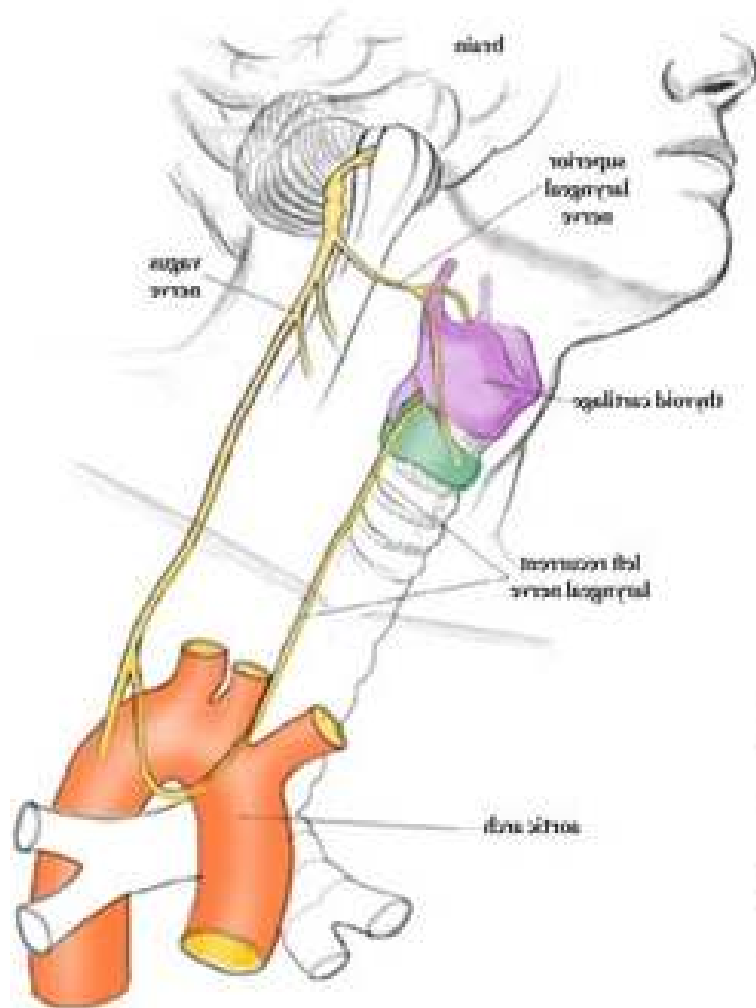
THE UNIVERSITY
of NORTH CAROLINA
at CHAPEL HILL

Lovingkindness Meditation

- LKM is a technique used to increase feelings of warmth and caring for self and others
- Effective long-term positive emotion and social connection induction (Fredrickson et al., 2008; Hutcheson et al., 2008)
- May be less vulnerable to habituation



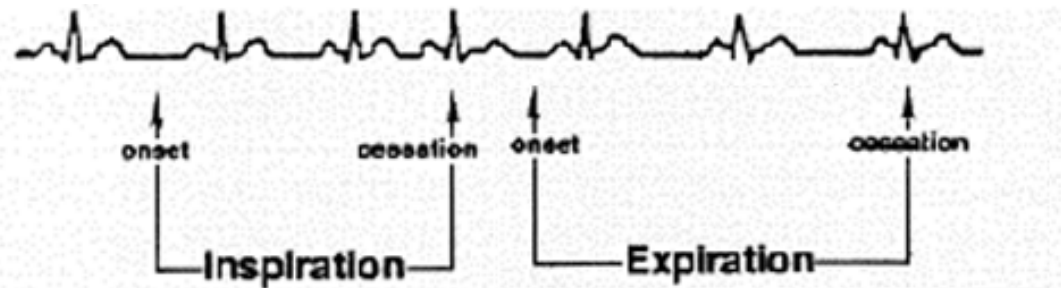
Social Physiology: Vagal Tone



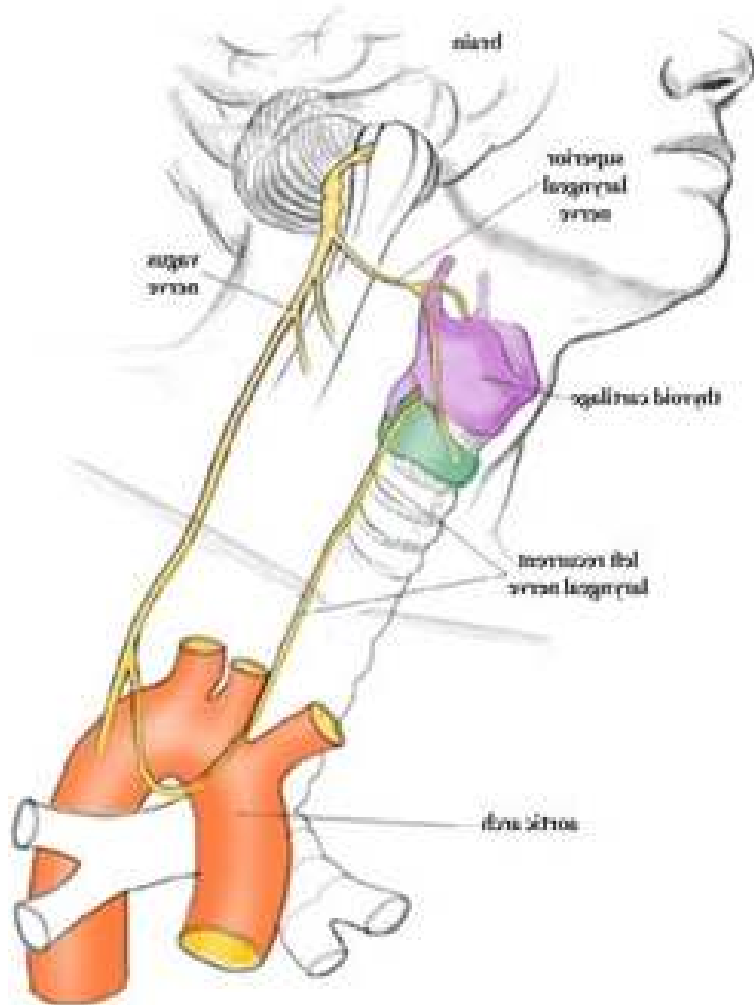
Part of the autonomic nervous system

Indicator of parasympathetic activity

- Counters the sympathetic stress response
- Measured through heart rate variability



Social Physiology: Vagal Tone



Associated with:
–Self-regulation
–Emotion regulation

Could vagal tone help people respond to LKM?

–Empathy
–High-quality social relationships
–Positive emotions

Could LKM increase vagal tone?

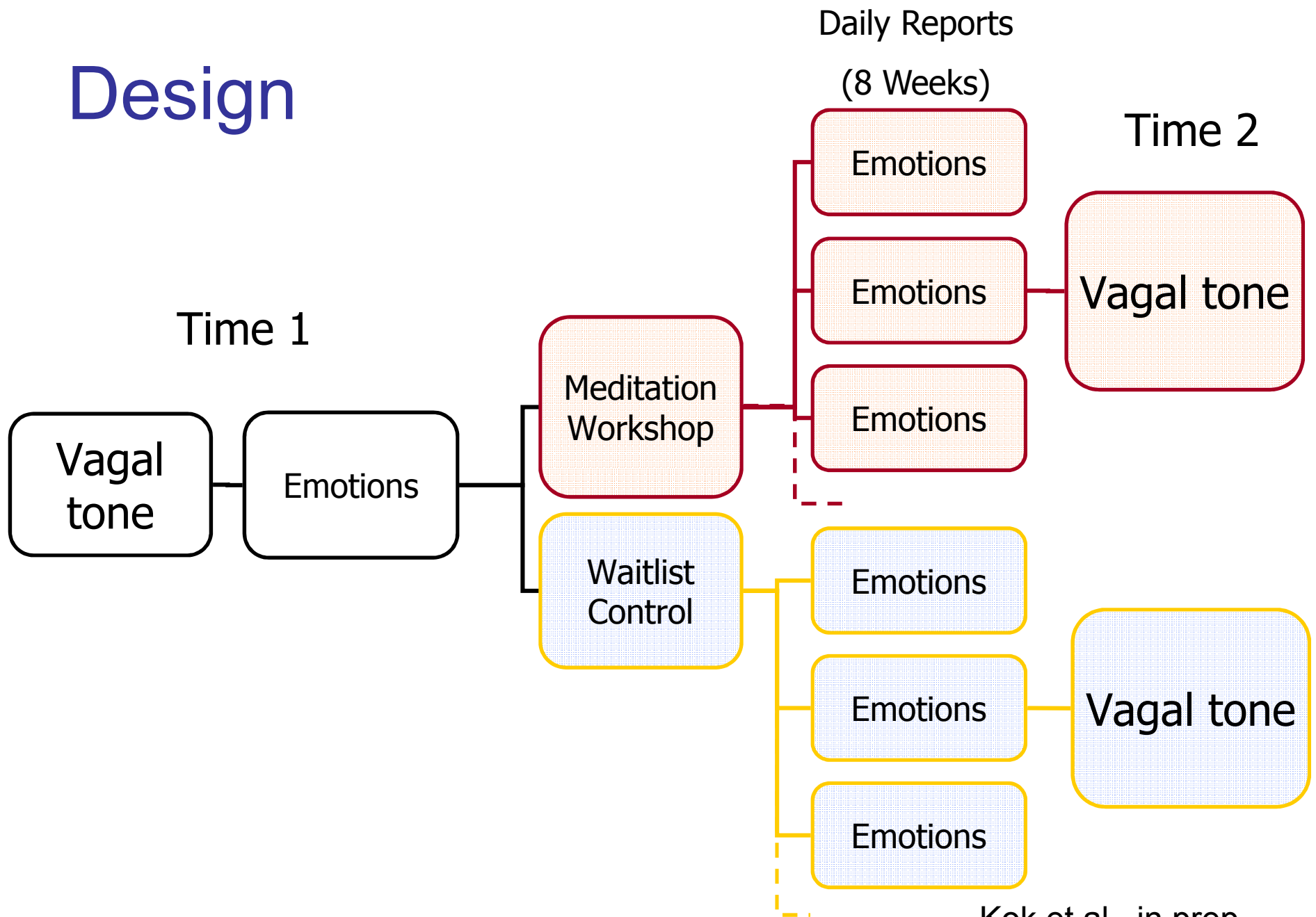
Study 1: LKM

- Community-dwelling adults
- N = 65
- Mean age = 37.3, range 21-68
- 90.4% white, 60% female

LKM Implementation

- Weekly hour-long workshops with local meditation trainer
- LKM on CD for individual practice
 - On average: 73 minutes per week ± 59
- Waitlist control comparison

Design



Positive Emotions

- Modified Differential Emotions Scale

10 Positive

Amused

Awed

Content

Excited

Grateful

Hopeful

Interested

Joyful

Loving

Proud

mean daily $\alpha = .94$

10 Negative

Angry

Ashamed

Bored

Contemptuous

Disgust

Embarrassed

Guilty

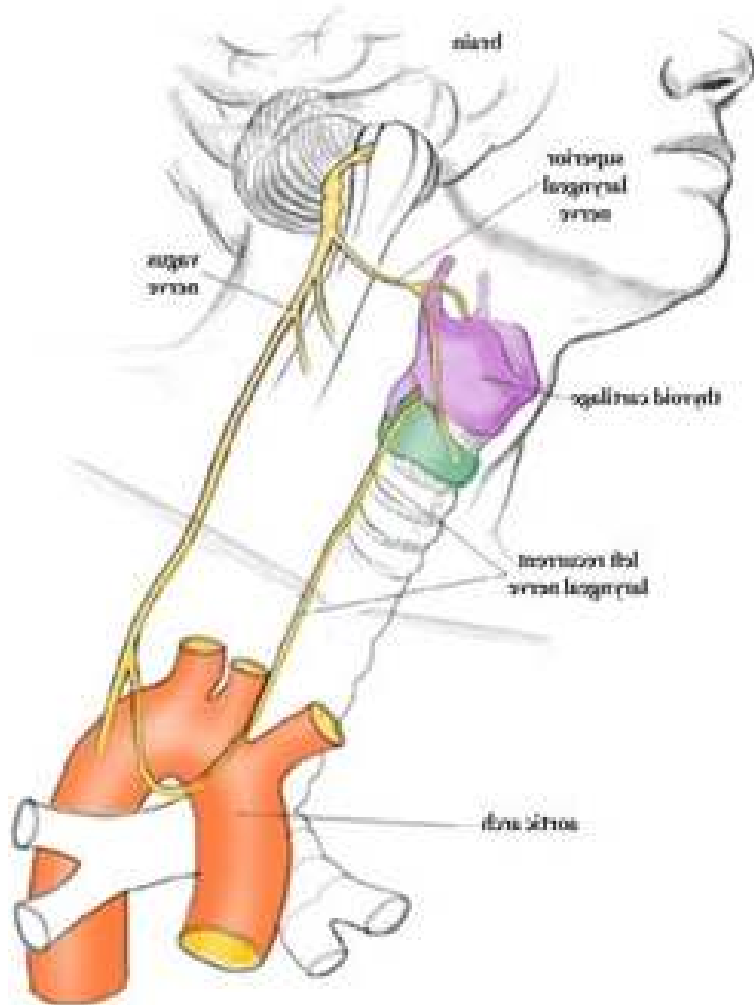
Hatred

Sad

Scared

mean daily $\alpha = .85$

Vagal Tone



Resting 2 minute baseline

Two measurements:

1. Respiratory Sinus Arrhythmia (RSA)

- Heart rate
- Respiration

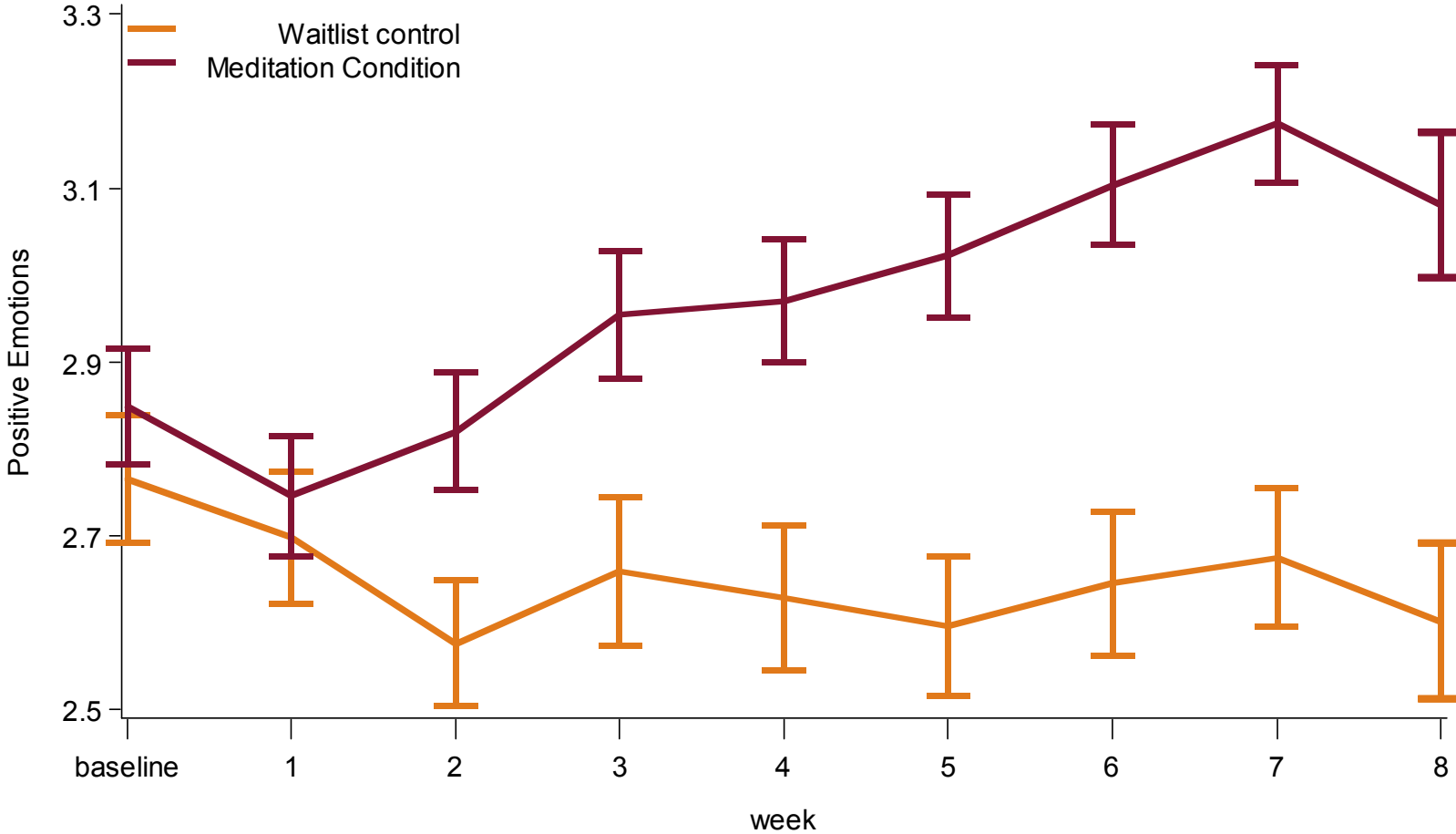
2. High-Frequency Heart Rate Variability

- Heart rate

RSA/HF-HRV $r = .93$

Kok et al., in prep

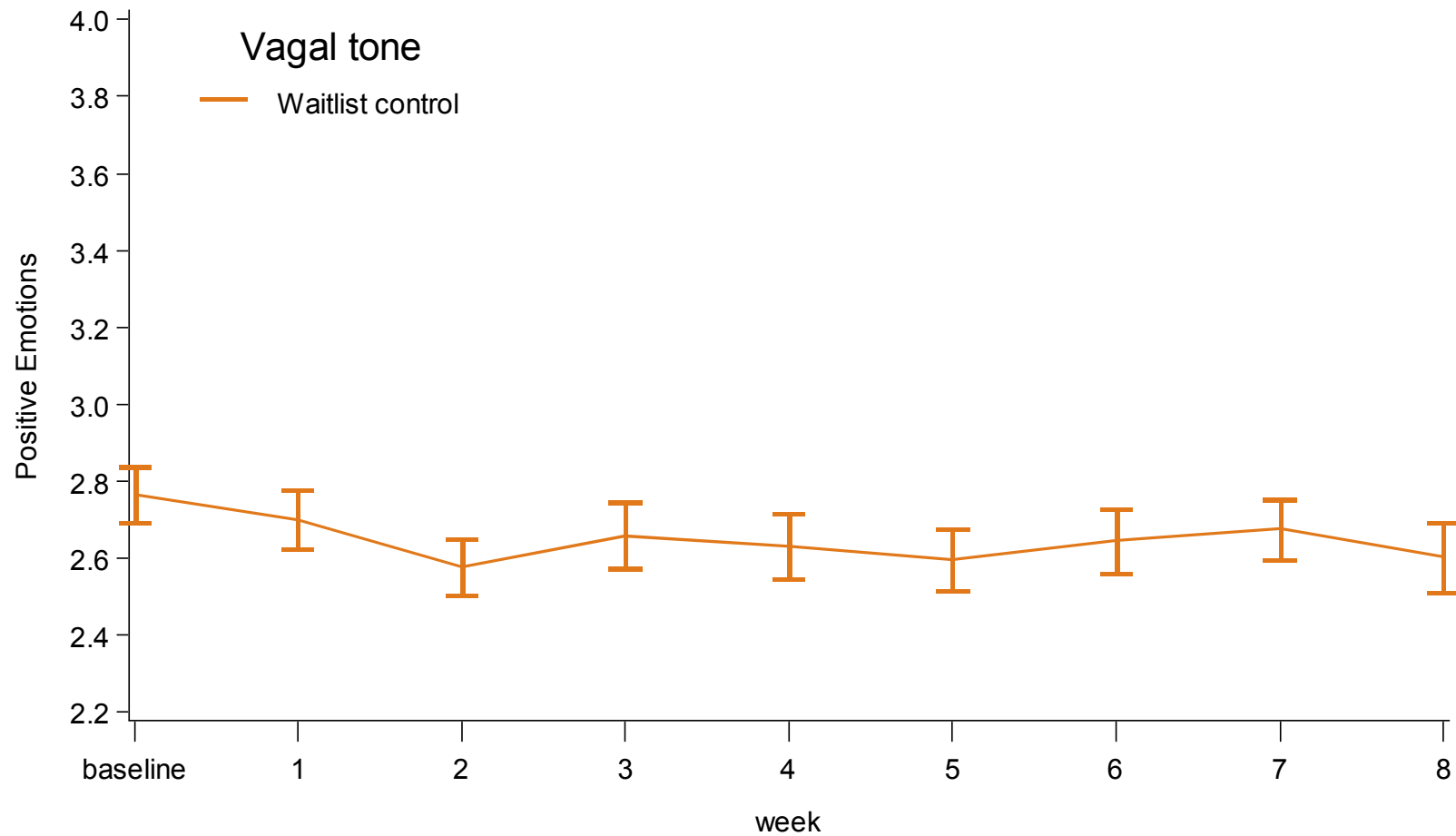
LKM Increases Positive Emotions



0 = not at all to 4 = extremely

Kok et al., in prep

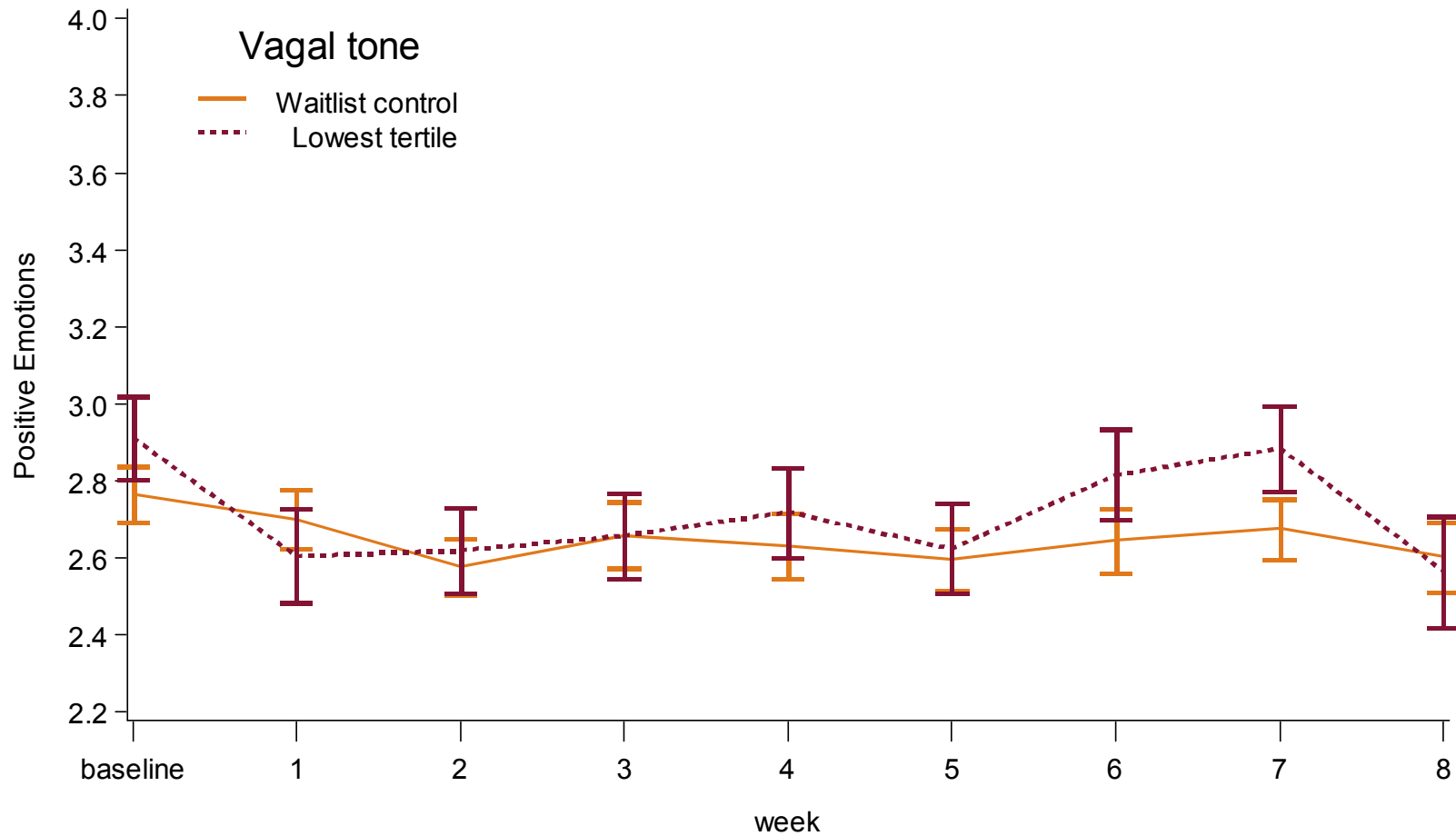
Vagal Tone Moderates the Effectiveness of LKM



0 = not at all to 4 = extremely

Kok et al., in prep

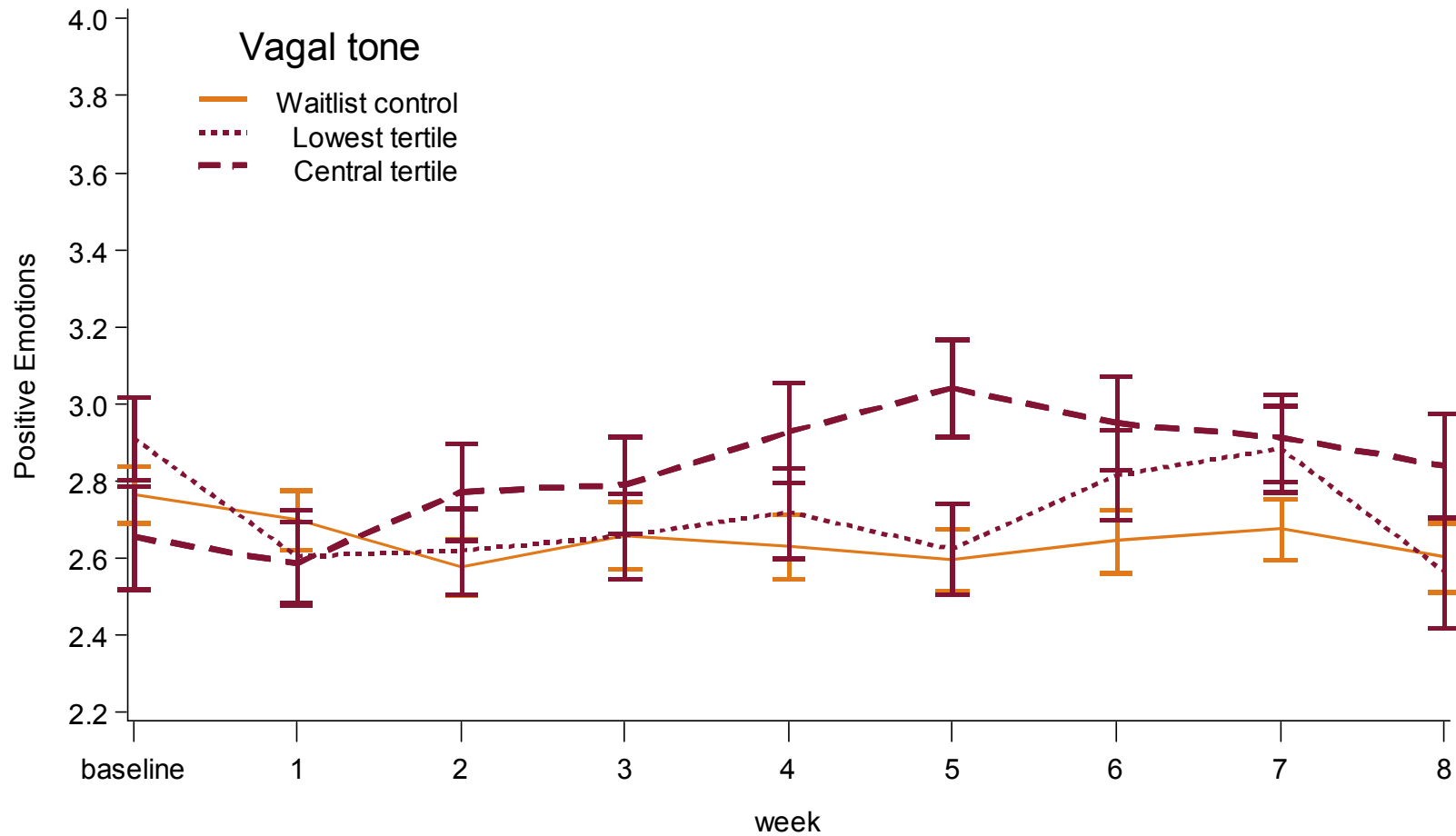
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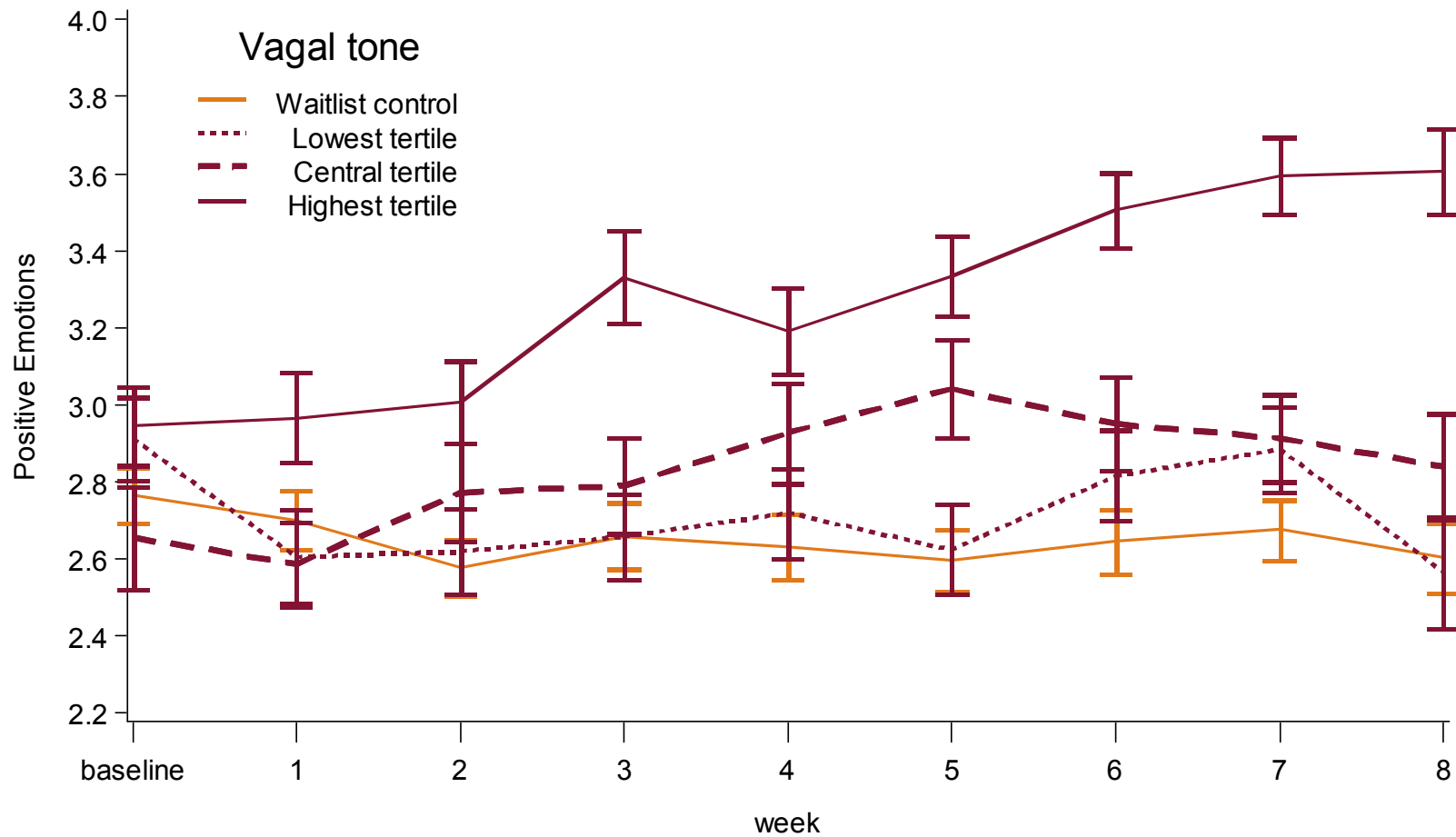
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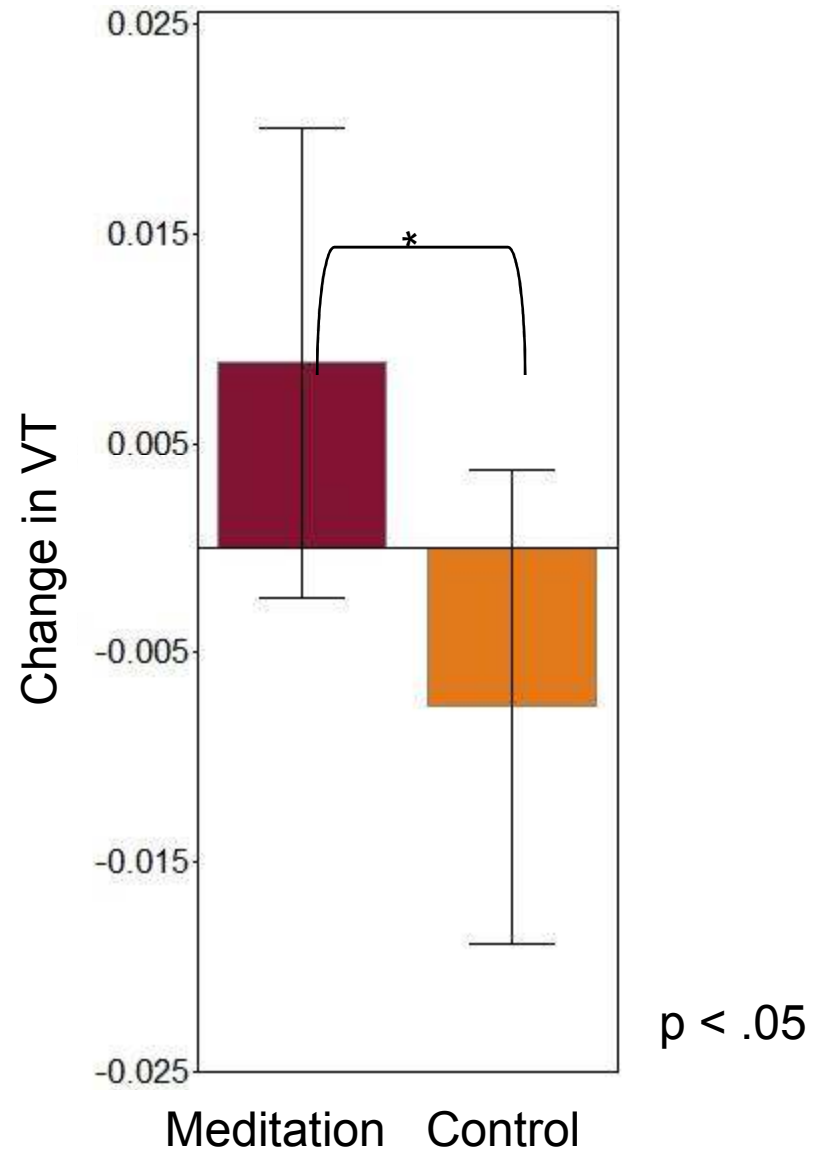
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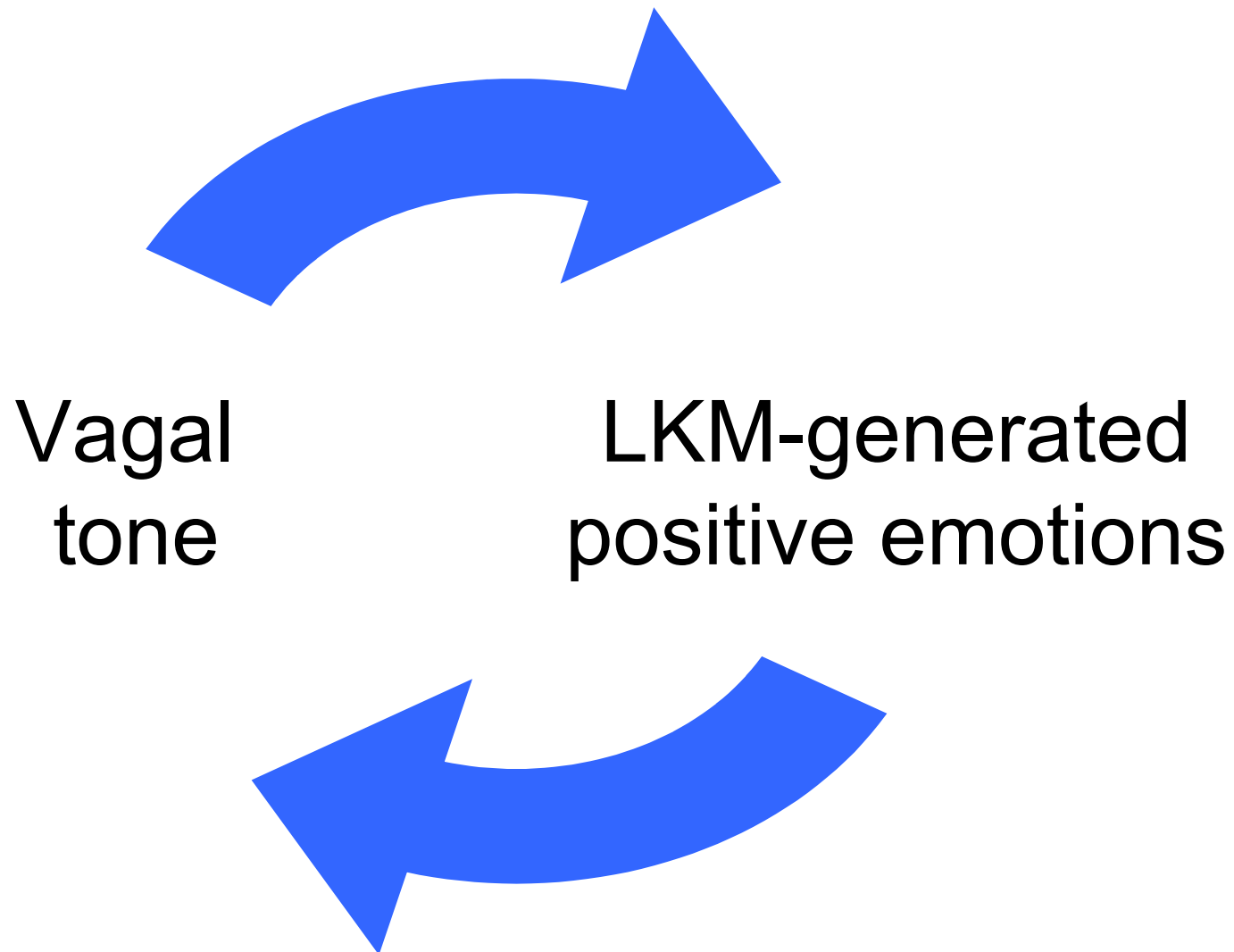
Kok et al., in prep

LKM Increases Vagal Tone



Kok et al., in prep

Upward Spiral of LKM and Vagal Tone



LKM: Control Condition

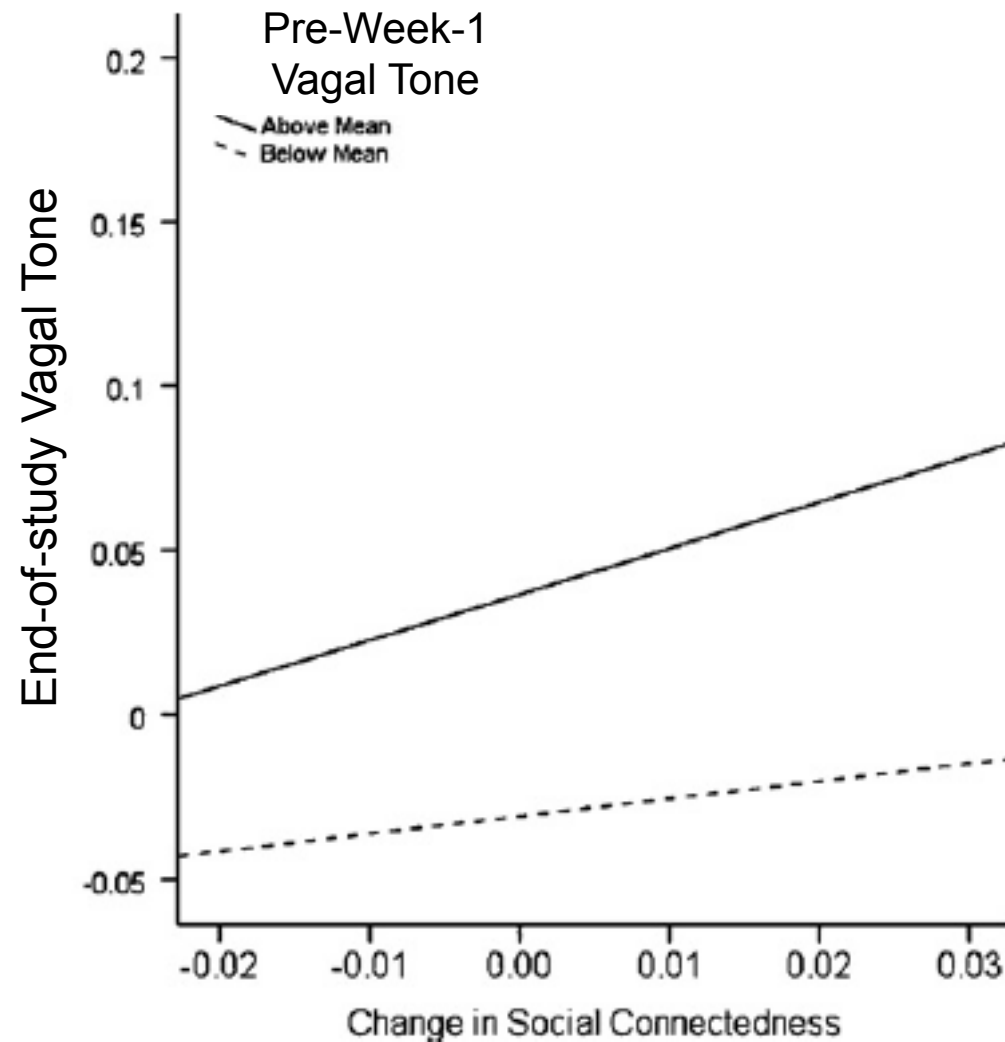
- A main effect of time
 - Moderated by vagal tone



What Could Have Caused This?

- Social Connection questions
 - From UCLA Loneliness scale
- “List the three longest social interactions you engaged in today.”
- During these interactions...
 - “I felt “in tune” with the person/s around me”
 - “I felt close with the person/s around me.”

Upward Spiral of Vagal Tone and Social Connections



Social Connection Intervention Pilot

- Social Connection intervention
 - 3 minutes per day for 28 days
 - Delivered via email
- Faculty, staff and graduate students employed at UNC
- N=100
- Mean age= 35.5, range 18-62
- 84.8% White, 85% Female

- Mid-July through Mid-August
- Track daily emotions and health

Intervention instructions

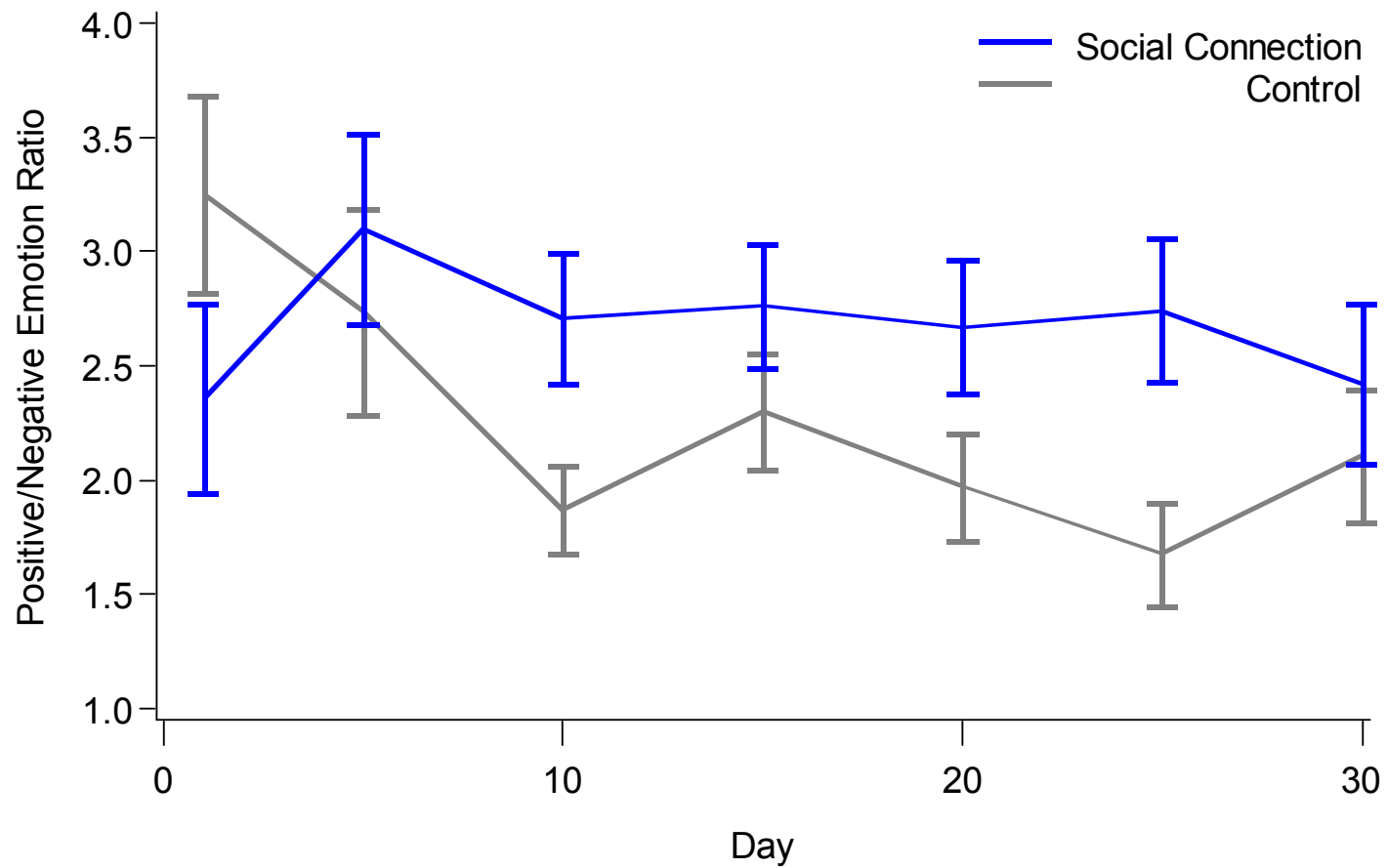
Social connection condition

- “List the three longest social interactions you engaged in today.”
- During these interactions...
 - “I felt “in tune” with the person/s around me”
 - “I felt close with the person/s around me.”

Control condition

- “List the three longest activities you engaged in today.”
- During these activities...
 - “I felt the task was useful to me.”
 - “I felt the task was important to me.”

Social Connection and Well-Being



Kok, Dissertation in progress

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