

# Changes in Well-Being from a 30-minute Meditation: Comparing the Effects of Different Delivery Methods

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# Most Previous Approaches

## 1) Long-Term Meditation

Most studies are correlational,  
looking at difference between  
long-term **meditators** vs. **non-meditators**

Fewer studies are interventional,  
often long-term (**3 months**) retreats  
(compared to wait-list controls)

## 2) Cohort is typically Self-Selecting

Participants are *incentivized to improve*

# Most Previous Approaches: Limitations

## 1) Long-Term Meditation

*Impossible to know which aspects of the meditation are most effective*

## 2) Cohort is typically Self-Selecting

*There could be “placebo effects”*

# Current Approach

## 1) Short-Term Meditation (30 minutes)

- *Is 30 minutes enough to see improvement in well-being?*
- *If so, this allows more conditions to be tested to study the effects of different aspects of meditation*

## 2) Cohort is not Self-Selecting

*Randomized Control Trial*

*.....with Active Control*



# Methods

## 30-Minute Meditation

- 1) Walking Meditation/Body Scan: *10 minutes*
- 2) Mindful Meditation (Vipassana): *10 minutes*
- 3) Compassion Meditation: *10 minutes*



*In groups of 10*

Control:  
30-Minute Movie



## Question 1-

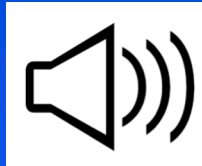
*Is 30 minutes of meditation sufficient to improve well-being?*

# Methods

## 30-Minute Meditation: 4 conditions (2 x 2 factorial)



**Leader  
Present**



**Recording  
of Leader**

**No  
Expectation**

**Expectation**

**Leader  
No expect**

**Leader  
Expect**

**Record  
No expect**

**Record  
Expect**

*“This exercise is  
expected to enhance  
your well-being,  
and I hope this will  
happen for you today”*



**Question 2- Does having the leader present produce  
greater improvement?**

**Relevant to the question of effectiveness of online Apps!**

**Question 3- Does expectation produce greater improvement?  
(also investigated this for the Movie Control)**

# Methods

## 30-Minute Meditation: *1 extra condition*

1 participant at a time



Recording  
No Expectation

VS.

10 participants at a time



Recording  
No Expectation

**Question 4-** *Does being in a group produce greater improvement than being alone?*

Relevant to the question of effectiveness of online Apps!

# 186 Participants (campus undergraduates)

Mean age =  $20.4 \pm 0.2$  years

	N	%
<u>Gender</u>		
Female	130	69.9%
Male	52	27.9%
Transgender or unreported	4	2.2%
<u>Race</u>		
Asian	117	62.9%
White	24	12.9%
Hispanic	28	15.1%
Other	17	9.1%

No effects of Gender and Race

# Methods

Participants filled out Mental Well-Being Questionnaires  
PRE and POST Intervention



$$\text{Improvement (\%)} = \frac{(\text{POST} - \text{PRE})}{\text{Max Points on Questionnaire}}$$

# Which Questionnaires?

## Exploratory

- 1) Mood Scale, 42-Item (Huelsenman et al, 1998; Brief et al.1988; Thompson, 2007)
- 2) State-Trait Anxiety Inventory (STAI) (Spielberger et al., 1983)
  - a) *State*
  - b) *Trait*
- 3) Warwick Mental Well-being (Stewart-Brown et al. 2009)
- 4) Psychological Well-Being Scales (PWB), (Ryff & Keyes, 1995)
- 5) Five Facet Mindfulness Questionnaire, 20 items (Baer et al, 2006)
- 6) Multidimensional Assessment of Interoceptive Awareness (MAIA) (Mehling et al., 2012)
- 7) Compassion Love for Humanity Scale (Pommier, 2011)

# Question 1: Is 30 minutes sufficient?

## (Meditation vs. Movie Control)

**MANOVA results:  $F(8,137) = 2.10, p = 0.0396$**

Questionnaire	
1) Mood Scale	
2) STAI-State	
3) STAI-Trait	
4) Compassion	
5) Psychological Well-Being	
6) MAIA	
7) Warwick-Edinburgh	
8) Five Facet Mindfulness Q	

# Question 1: Is 30 minutes sufficient?

## (Meditation vs. Movie Control)

States

Questionnaire	F(1,44)	p value
1) Mood Scale	13.9	0.000277
2) STAI-State	5.66	0.0187

Positive  
e.g., Enthusiastic  
e.g., Peaceful

vs.

Negative  
e.g., Upset  
e.g., Tired

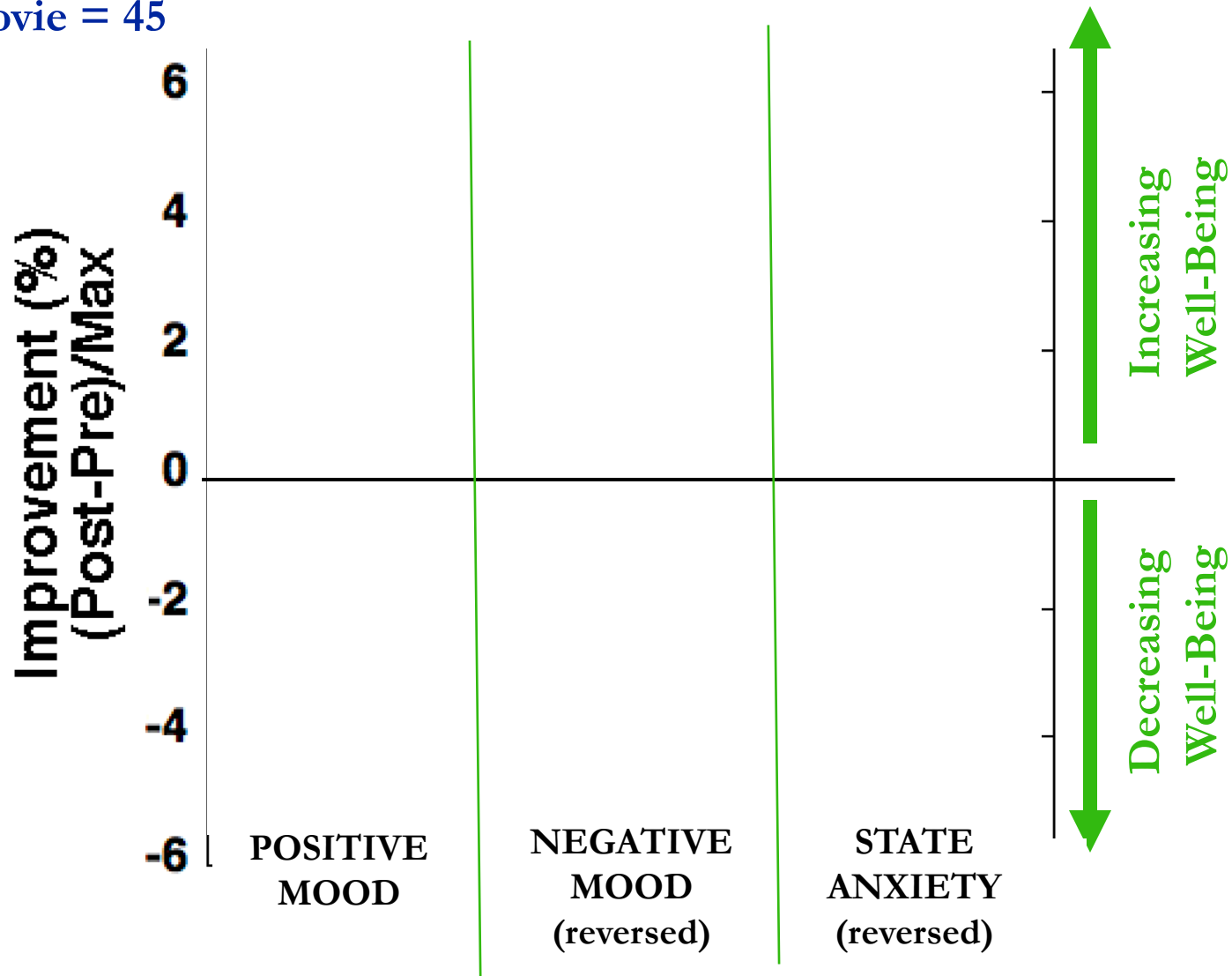


# Question 1: *Is 30 minutes sufficient?*

MANOVA:  $(F(3,149) = 5.16, p = 0.002)$

■ Meditate = 111 (all 4 conditions collapsed)

■ Movie = 45

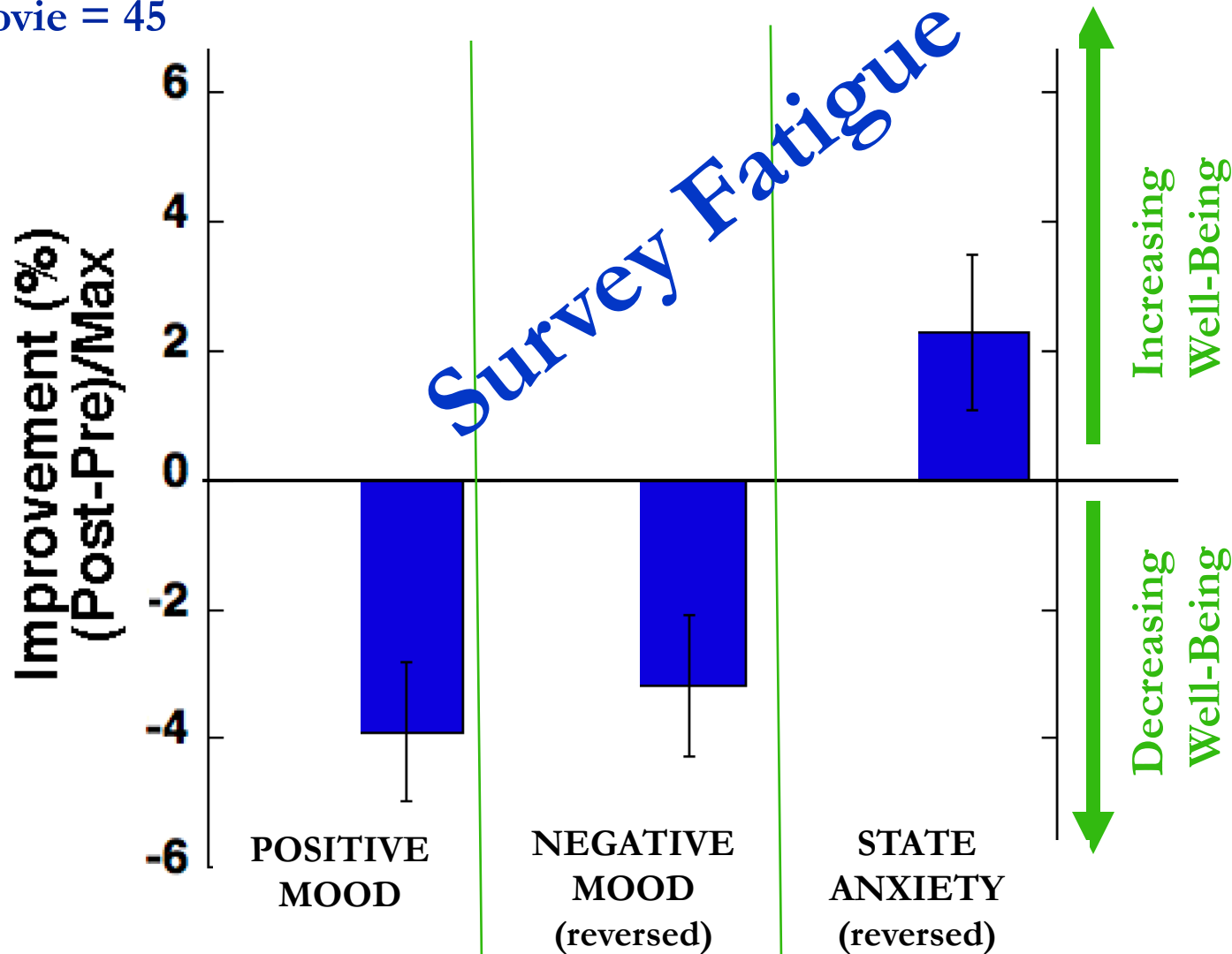


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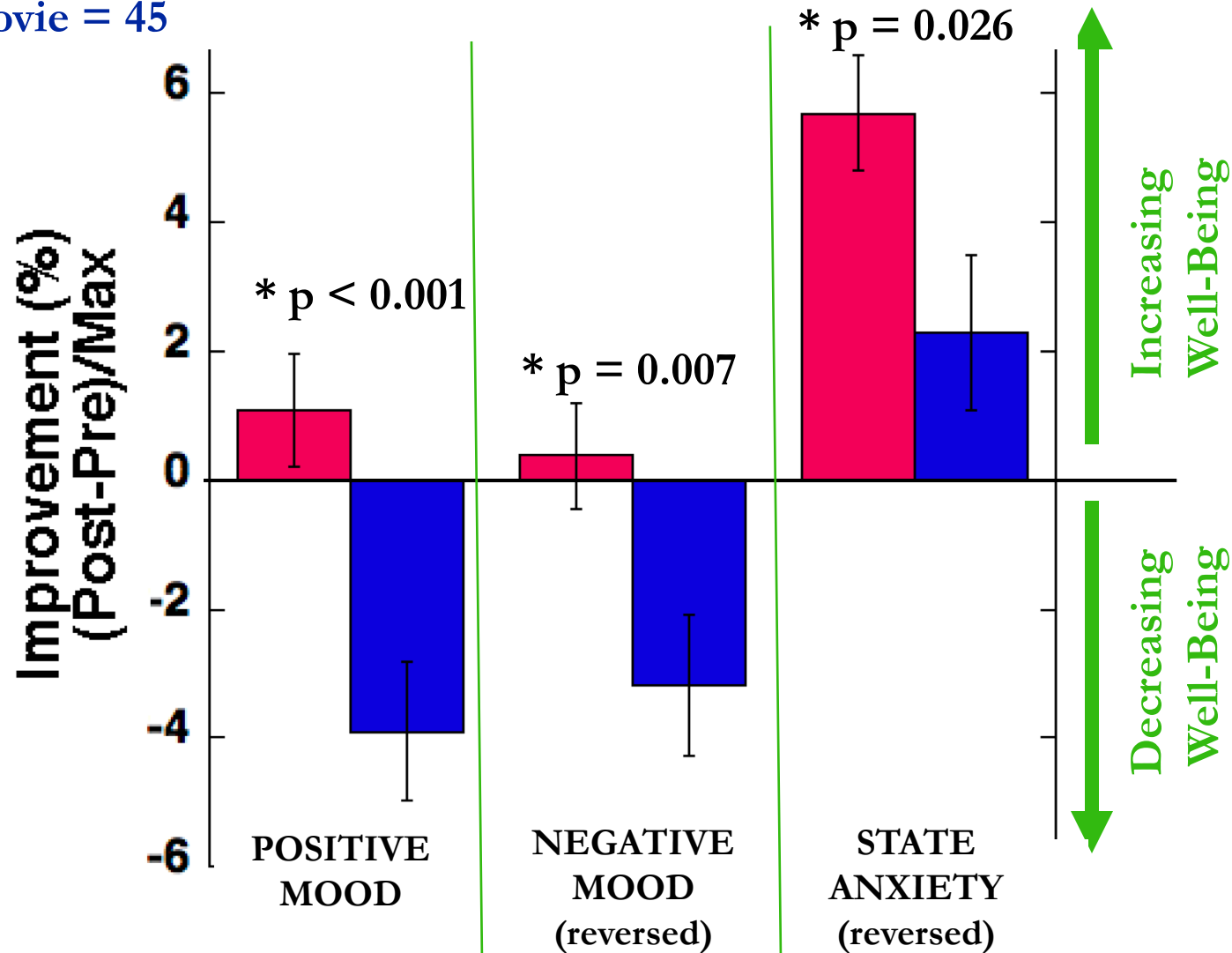


# Question 1: *Is 30 minutes sufficient?* YES!

MANOVA:  $F(3,149) = 5.16, p = 0.002$

■ Meditate = 111 (all 4 conditions collapsed)



■ Movie = 45



## Question 2- *Does having the leader present produce greater improvement?*

**NO!**

MANOVA:  $F(3,102) = 1.42, p = 0.24$

		No Expectation	Expectation
	Leader Present	N = 29	N = 29
	Recording of Leader	N = 27	N = 26

*So far, this is good news for online Apps!*  
*.....although more to say about this in Q&A*

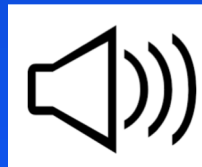
### Question 3- *Does expectation produce greater improvement?*

MANOVA:  $F(3,102) = 3.71, p = 0.014$

**YES!**



**Leader  
Present**



**Recording  
of Leader**

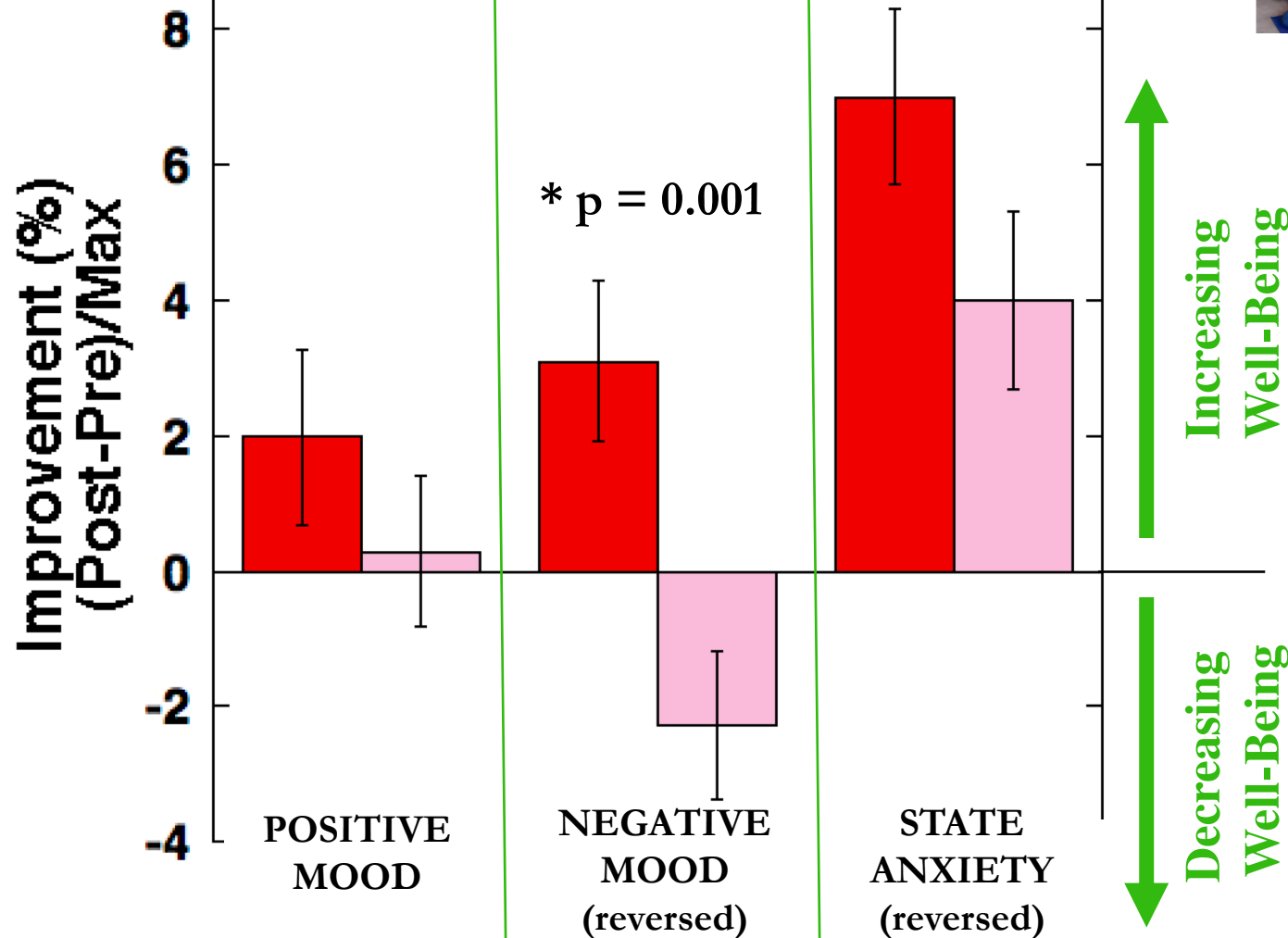
		No Expectation	Expectation
Leader Present	Recording of Leader	N = 29	N = 29
		N = 27	N = 26

Interaction Not Significant: MANOVA:  $F(3,102) = 0.85, p = 0.47$

# Question 3: Expectation Effects for *Meditation*

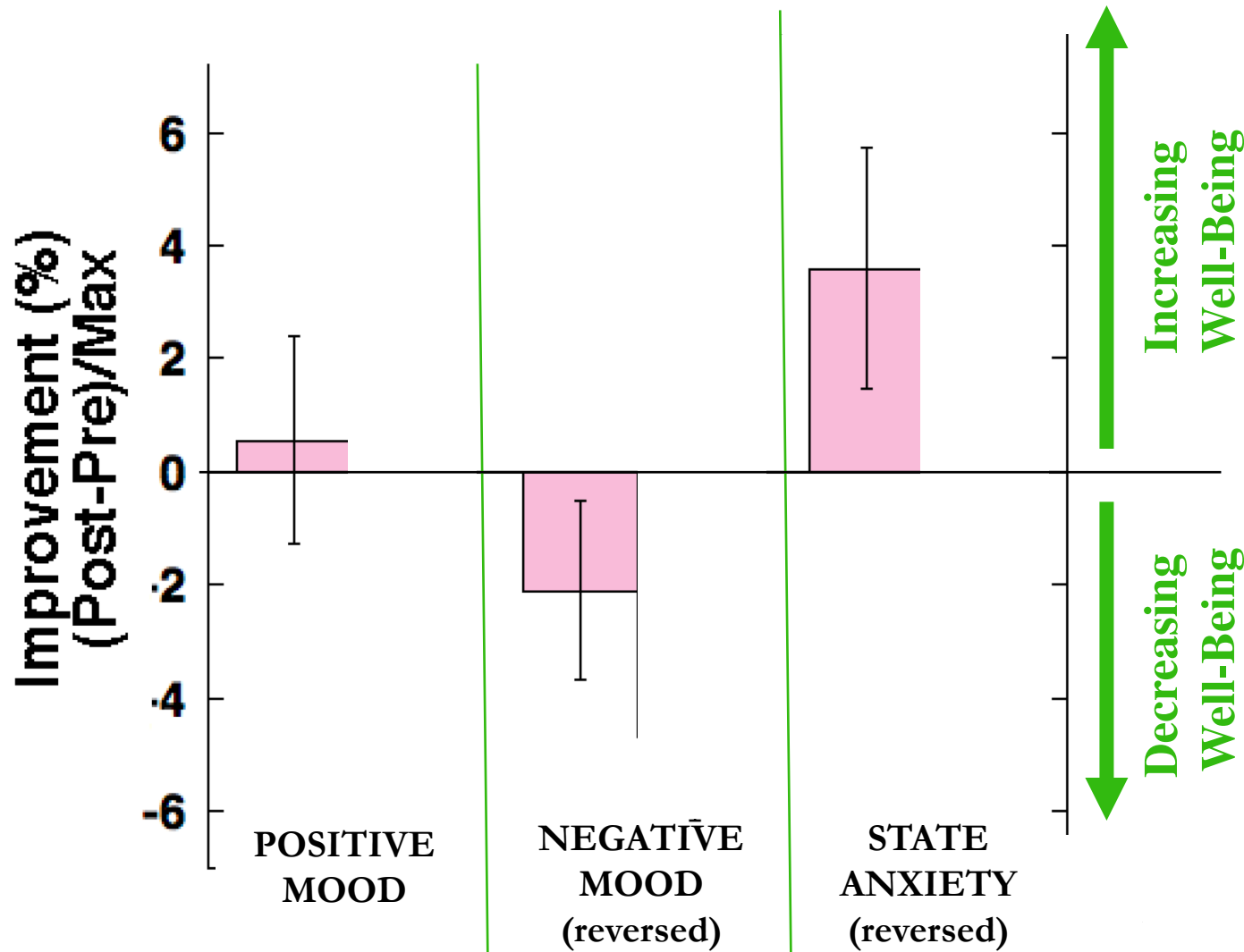
Only significant for Negative Mood

■ Expect = 55  
■ No Expect = 56



# Question 4: *Is it better to be in a group?*

■ Group Meditation = 27 (Recording, No Expect)



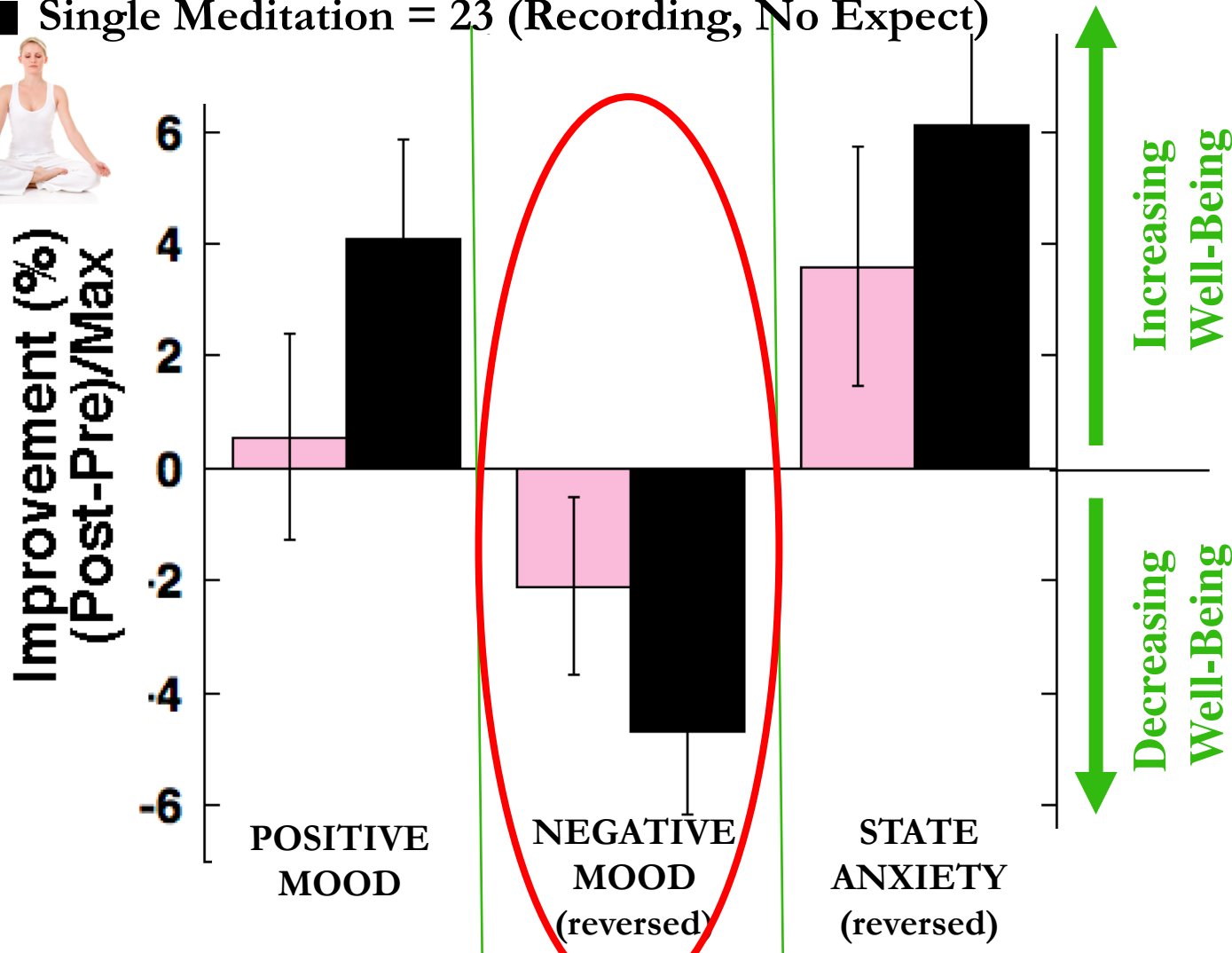
# Question 4: *Is it better to be in a group?*

NO!

MANOVA:  $(F(3,52) = 1.32, p = 0.28)$

■ Group Meditation = 27 (Recording, No Expect)

■ Single Meditation = 23 (Recording, No Expect)





# Some further analysis on *Negative Mood*

1) Pre Scores Predict Improvement

2) Two Types of Negative Mood

High Energy: e.g., “Upset”

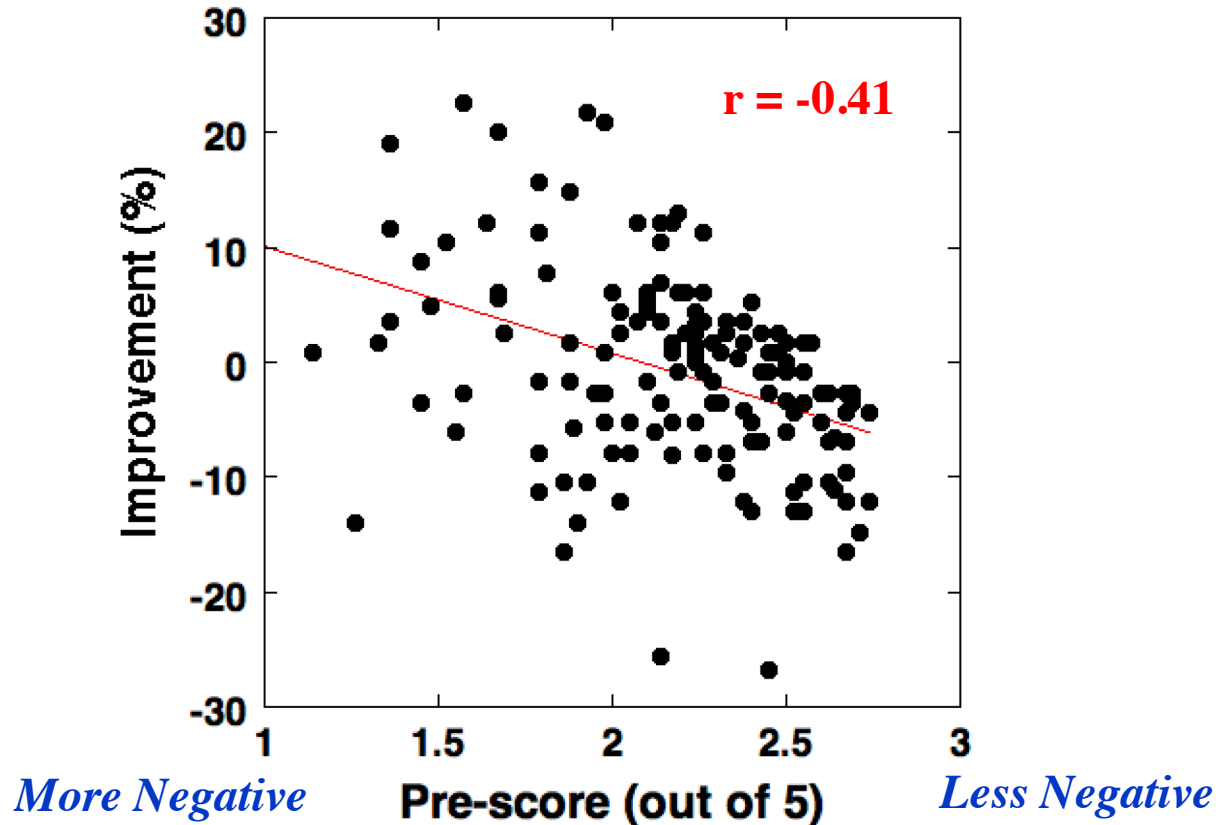
Low Energy: e.g., “Tired”

Maybe come back to in Q&A

# Some further analysis on *Negative Mood*

## Pre Scores Predict Improvement

Might be due to regression towards the mean



Putting Pre Scores into the statistical model reveals somewhat *stronger effects* of our manipulations

# Conclusions

**1) Yes, 30 minutes of meditation is sufficient for improving well being**

- Use State, not Trait, Questionnaires (and not too many)

**2) No, it does not help to have the leader present**

- But maybe that is idiosyncratic

**3) Yes, people improve more if we tell them to expect it**

- Is that real? Or are they just telling us what they think we want to hear?

**4) No, it is *not* better to be in a group meditation vs. alone**

Online Meditation Apps might be “as good as it gets”  
(but perhaps *expectation* should be added in)

**Thank you!**