

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-

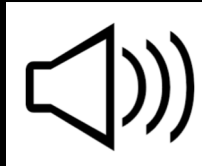
Is 30 minutes of meditation sufficient to improve well-being?

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 ± 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	F(1,44)	p value
1) Mood Scale	13.9	0.000277
2) STAI-State	5.66	0.0187
3) STAI-Trait	1.94	0.17
4) Compassion	1.92	0.17
5) Psychological Well-Being	1.64	0.20
6) MAIA	0.44	0.51
7) Warwick-Edinburgh	0.25	0.62
8) Five Facet Mindfulness Q	< 0.0001	0.99

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.

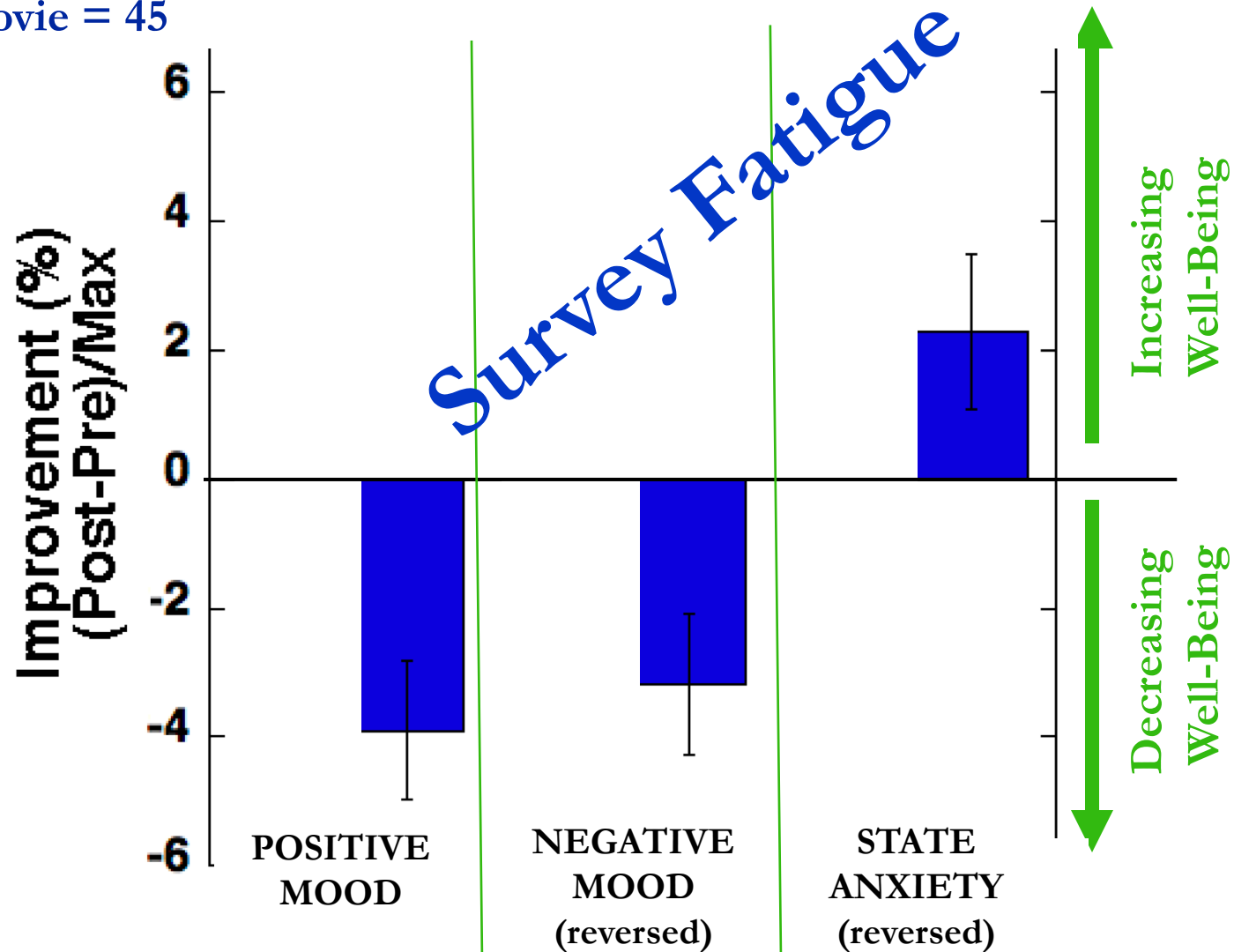
Negative
e.g., Upset
e.g., Tired

Question 1: *Is 30 minutes sufficient?*

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

■ Meditate = 111 (all 4 conditions collapsed)

■ Movie = 45

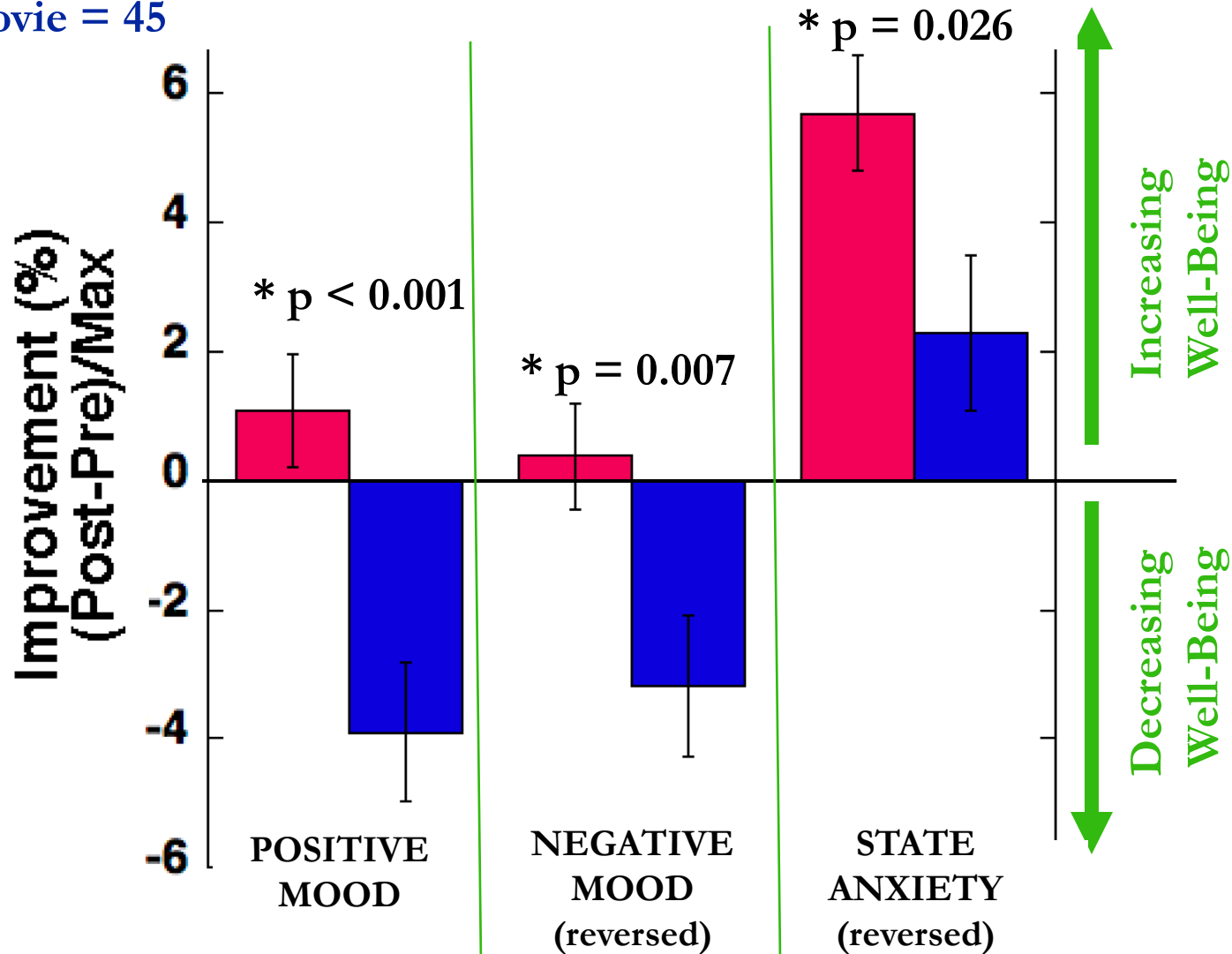


Question 1: *Is 30 minutes sufficient?* YES!

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?*

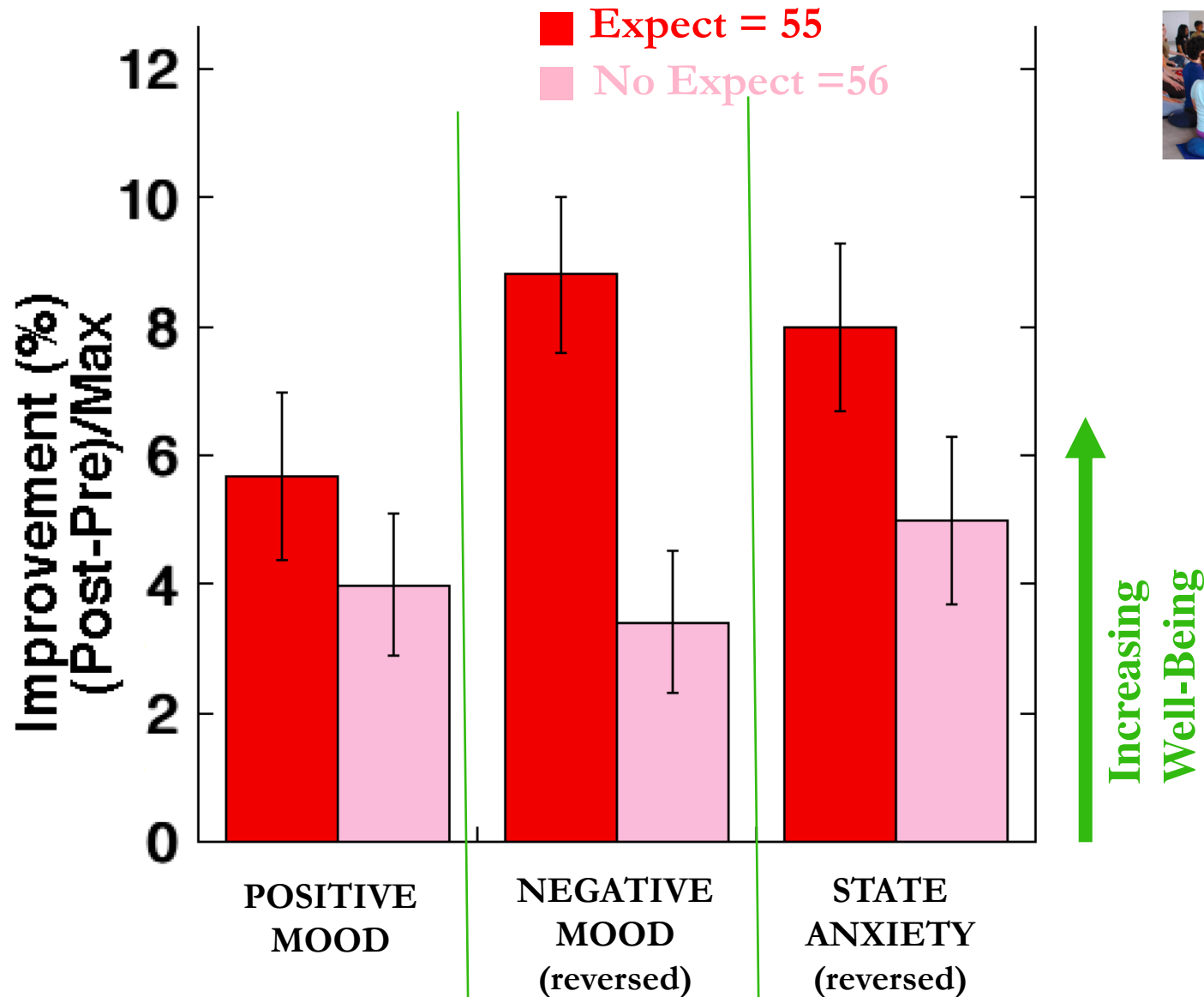
MANOVA: $F(3,102) = 3.71, p = 0.014$

YES!

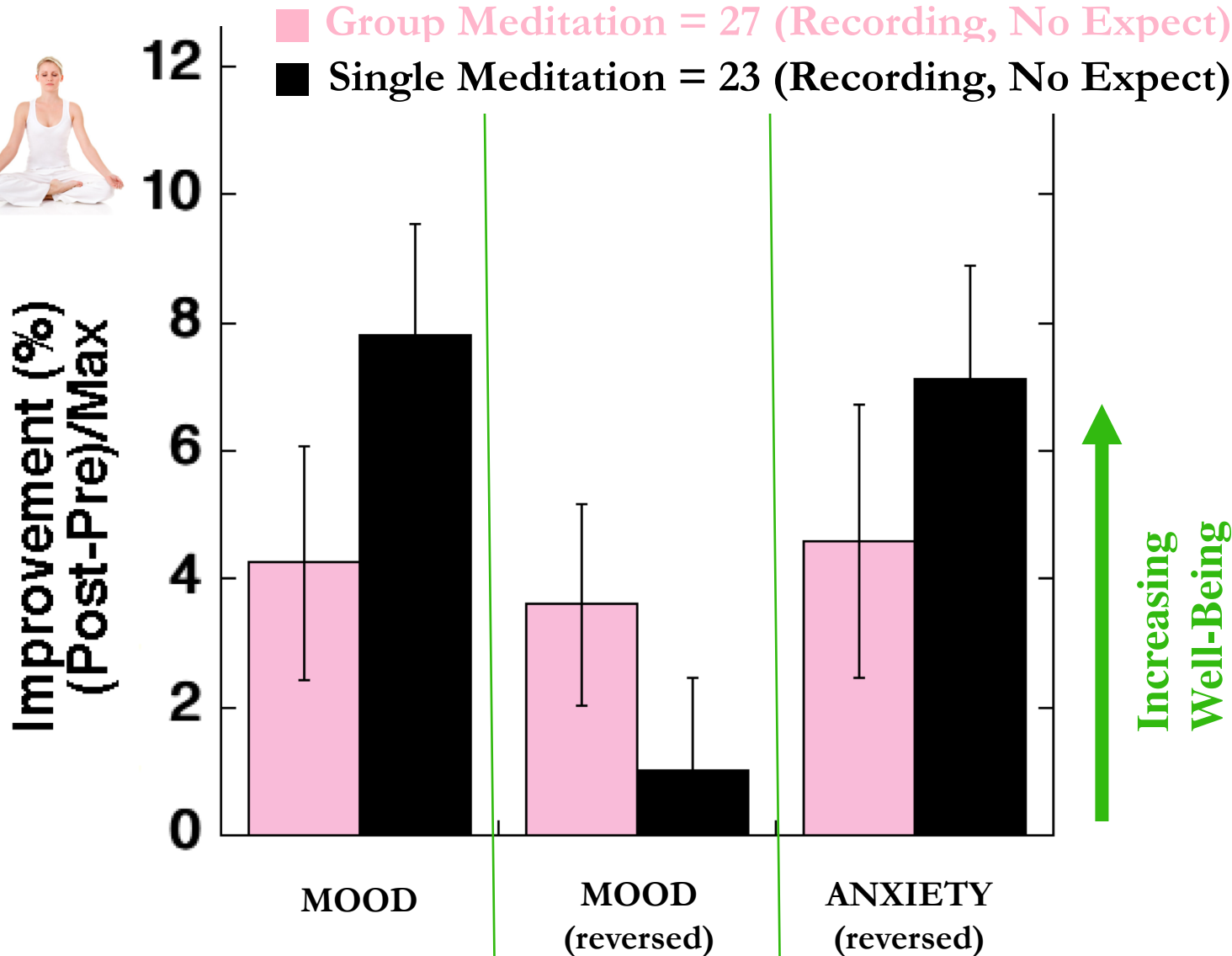
		No Expectation	Expectation
 Leader Present		N = 29	N = 29
	 Recording of Leader	N = 27	N = 26

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

Question 3: Expectation Effects for *Meditation* **YES!** Based-lined to Movie condition



Question 4: *Is it better to meditate in a group?* **NO!** Based-lined to Movie condition



Some further analysis on *Negative Mood*

1) Pre Scores Predict Improvement

2) Two Types of Negative Mood

High Energy: e.g., “Upset”

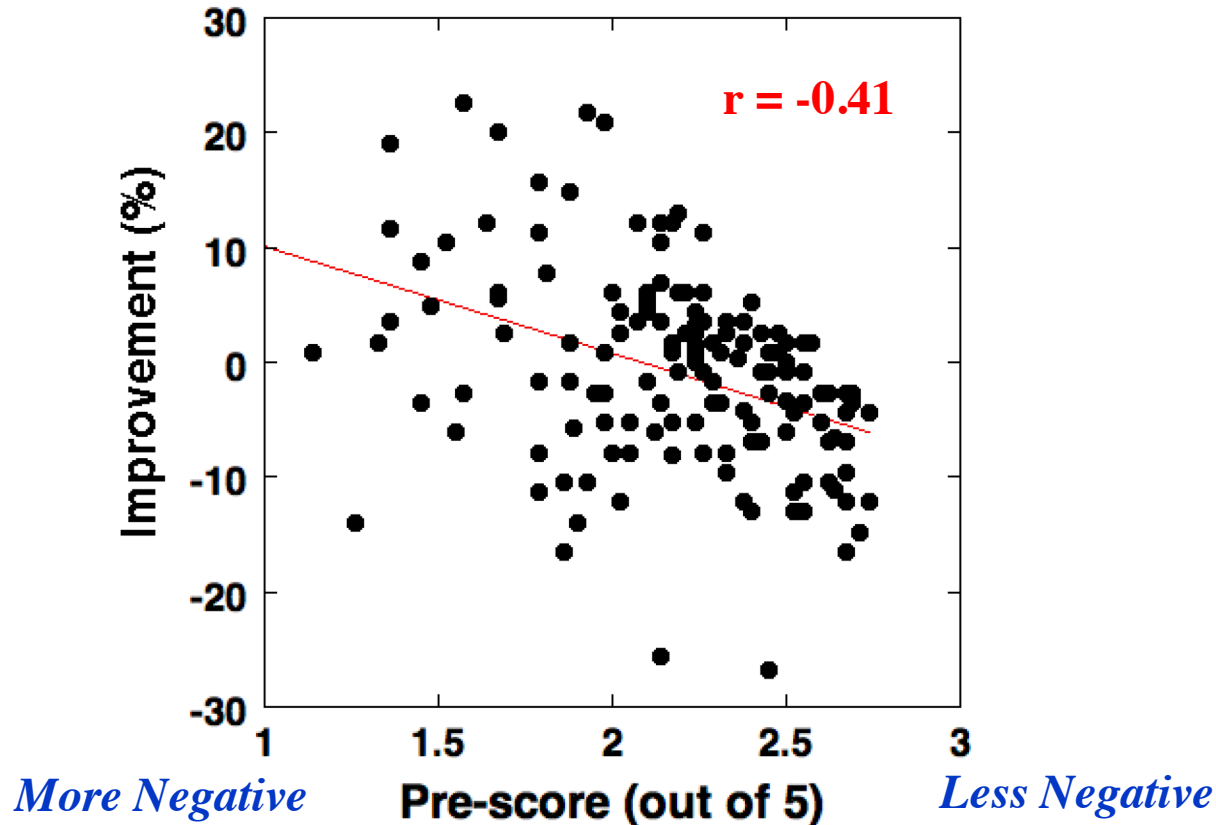
Low Energy: e.g., “Tired”

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)