

# 3 Evaluating efficacy and areas of clinical application for LI interventions

Tereza Ruzickova  
Psychopharmacology and Emotion Research Lab  
University of Oxford

26th May 2021



# BA session example



# Breakout room activities

**GROUP A**

**GROUP B**



# Explaining LI interventions in simple terms



**GROUP C**

**GROUP D**



# Evaluating the efficacy of BA and other LI interventions

- What are the best ways to evaluate the efficacy of psychological treatment?



# Evaluating the efficacy of BA and other LI interventions

- What are the best ways to evaluate the efficacy of psychological treatment?
- Why are randomised controlled trials **randomised**?



- Through randomisation, we are hoping to distribute any potentially confounding variables equally between both groups
- However, we should still check whether that succeeded (as much as we can)



## All demographic, clinical and COVID-related baseline characteristics

Diagnostic categories were assessed using the Structured Clinical Interview for DSM-5. MDE = major depressive episodes, PDD = persistent depressive disorder, GAD = generalised anxiety disorder

Variable (mean, SD)	BA group (n = 34)	Control group (n = 34)
Age	32.38 (10.92)	30.79 (11.27)
Years in full time education	16.29 (3.23)	15.88 (2.29)
Race	76.5% white, 23.5% non-white	96.9% white, 3.1% non-white
Highest education level attained	26.5% A-level/GCSE 38.2% Undergraduate or professional qualification 35.3% Postgraduate	23.5% A-level/GCSE 50% Undergraduate or professional qualification 26.5% Postgraduate
Current antidepressant treatment	14.7%	23.5%
Current MDE	48.5%	41.2%
Current PDD	6.1%	5.9%
Current GAD	6.1%	8.8%
Current panic disorder	6.1%	2.9%
Current social anxiety disorder	0%	2.9%
Baseline work status	25.7% full time 25.7% part time 48.6% unable to work	37% full time 20% part time 43% unable to work
Percentage critical key workers as defined by the UK government <sup>1</sup>	14% yes 86% no	17% yes 83% no

Baseline isolation status	44.1% only essentials 41.2% social distancing 8.8% normal 5.9% shielding with access to outside space 0% shielding with no access to outside space	41.2% only essentials 52.9% social distancing 2.9% normal 0% shielding with access to outside space 2.9% shielding with no access to outside space
---------------------------	--	--

Outdoor access	88.2% yes 11.8 % no	85.3% yes 14.7% no
Baseline time spent exercising per week (self-report)	51% less than 30min 49 % more than 30min	77% less than 30min 23% more than 30min
Baseline time spent outside per week (self-report)	80% less than 2h 20% more than 2h	77% less than 2h 23% more than 2h
Baseline COVID-19 risk	100% no	94% no 6% yes
Baseline COVID-19 risk in the family	77% no 23% yes	80% no 20% yes
Baseline COVID-19 symptoms	100% no	97% no 3% yes
Baseline COVID-19 diagnosis	97% no 3% suspected	80% no 20% suspected
Baseline COVID-related stress (score out of 72)	32.40 (6.44)	31.57 (7.86)
Baseline COVID-related anxiety (score out of 45)	32.31 (4.36)	30.63 (4.66)
Baseline COVID-related lifestyle disruption (score out of 24)	17.40 (3.35)	16.91 (3.82)

Baseline COVID-19 symptoms	100% no	97% no 3% yes
Baseline COVID-19 diagnosis	97% no 3% suspected	80% no 20% suspected

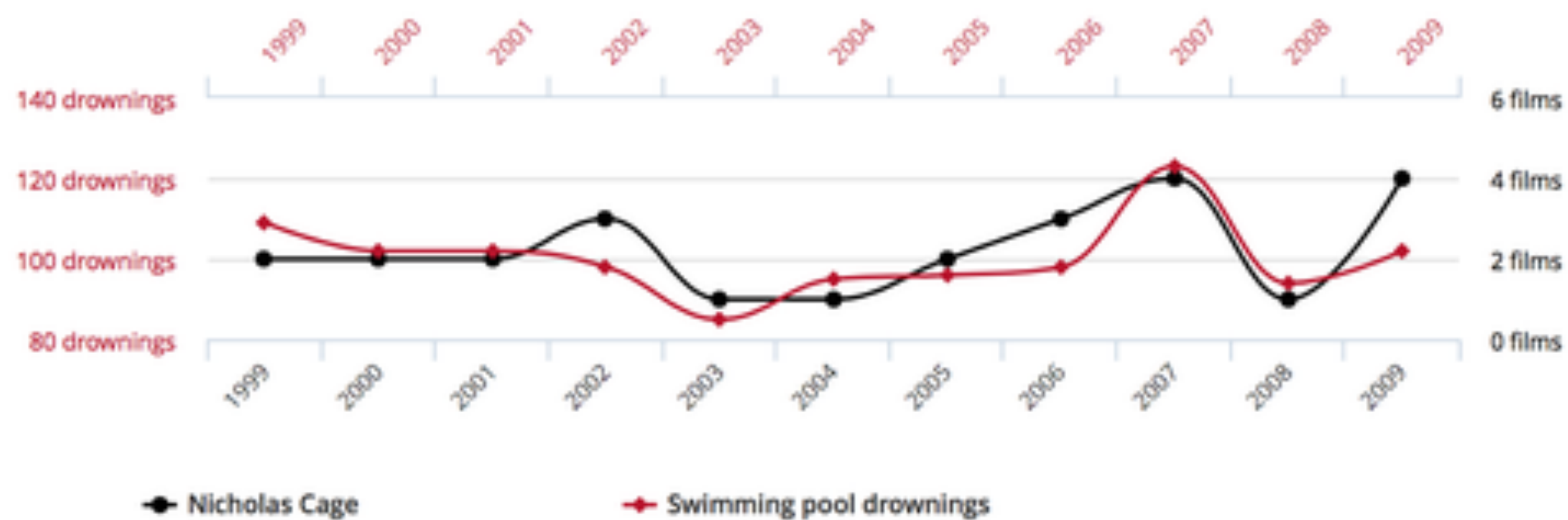
- By conducting an experiment, we can manipulate the temporal order of events (e.g. does an early increase in activation lead to a later decrease in depression, rather than the other way around?)
- Randomisation should prevent any third (confounding) variable from explaining the association



# Number of people who drowned by falling into a pool correlates with Films Nicolas Cage appeared in

Correlation: 66.6% ( $r=0.666004$ )

Swimming pool drownings



Nicholas Cage

tylervigen.com

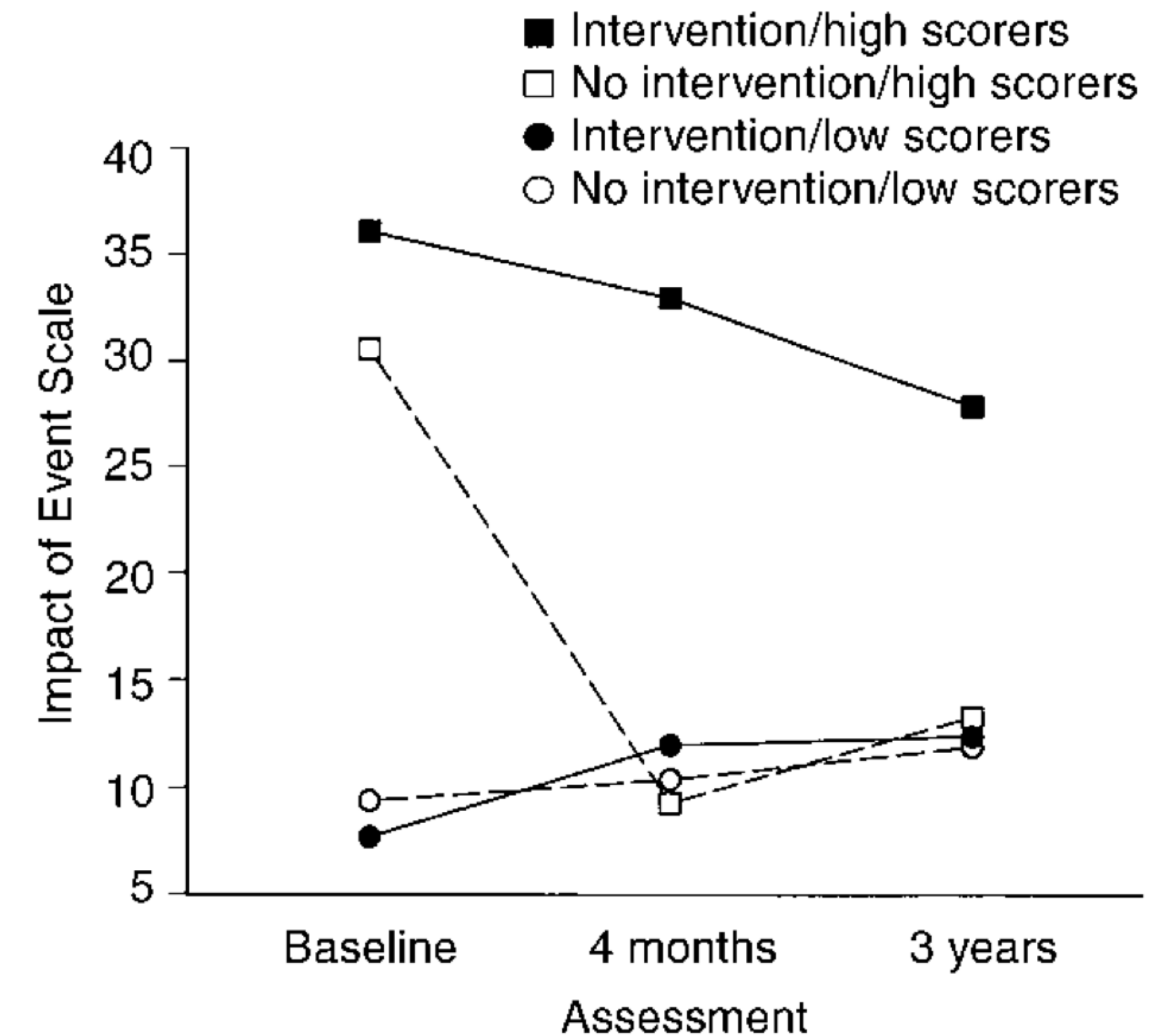
data sources: Centers for Disease Control & Prevention and Internet Movie Database

# Evaluating the efficacy of BA and other LI interventions

- What are the best ways to evaluate the efficacy of psychological treatment?
- Why are randomised controlled trials randomised?
- Why are randomised controlled trials **controlled**?



- A (passive) control group allows us to compare our intervention to rates of **spontaneous recovery with time** and **regression to the mean**
- Crucially, it allows us to check if we're not making patients worse than they would be without it!
- An active control group additionally allows us to compare our intervention to **placebo effects**, although this is harder to do with psychological interventions



**Mayou, Ehlers and Hobbs (2000)**

Psychological debriefing used to be a popular intervention after trauma until it was found it significantly slowed down recovery when compared to a passive control group!



# GROUP E

**GROUP F**

# Efficacy of LI interventions for depression



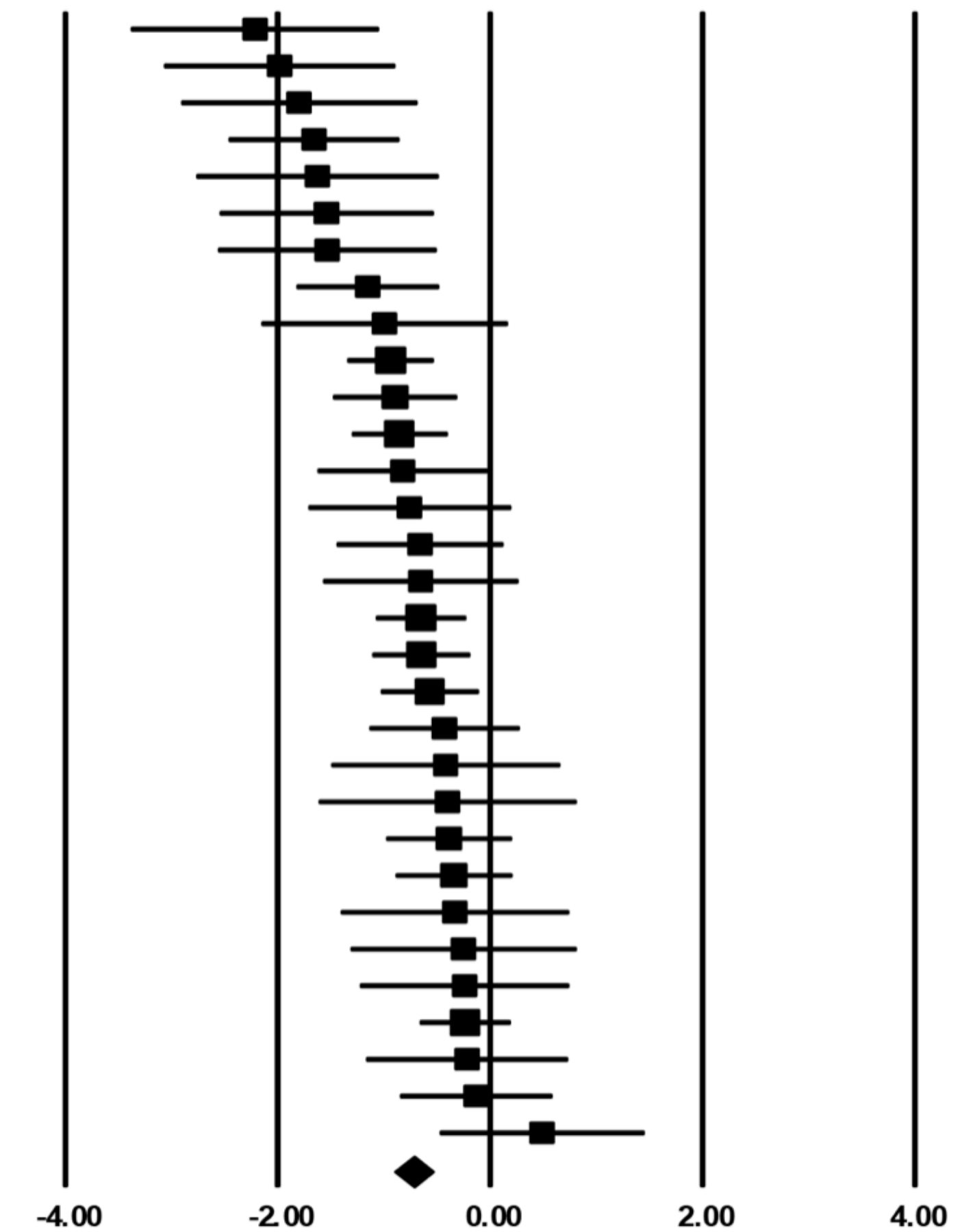
## Ekers et al. (2014)

- 26 randomised controlled trials (over 1500 participants)
- BA more effective than control groups or antidepressant medication
- More studies with long term follow-up needed

### Study name

Wilson 1983  
Fuchs 1977  
Maldonado Lopez 1982  
Gawrysiak 2009  
Taylor 1977  
Comas-Diaz 1981  
Cullen 2006  
Ekers 2011  
Rehm (SM) 1981  
Mitchell 2009  
Thompson 1987  
Carlbring 2013  
Rokke 1999  
Shaw 1977  
Thompson and Gallagher 1984  
Skinner 1984  
Mclean 1979  
O'Mahen 2013  
Gallagher-Thompson 2000  
van den Hout  
Wilson 1982 Pla vs Rlx  
Rehm (SC) 1981  
Lovett 1988  
Armento 2012  
Rehm (SM/SE) 1981  
Rehm (SM/SR) 1981  
Wilson 1982 Pla vs min con  
Dimidjian 2006  
Wilson 1982 Ami vs min con  
Kanter 2013  
Wilson 1982 & Ami vs rlx

### Hedges's g and 95% CI



**Favours BA Favours Control**

## Cuijpers et al. (2007) MA

- Large effect size when comparing BA and control conditions
- No significant difference from other established treatments for depression

## Mazzuchelli et al. (2009) MA

- Again, large effect sizes found in comparison to control conditions
- No significant difference from other established treatments

*“BA may be considered a well-established and advantageous alternative to other treatments of depression.”*

## Orgeta et al. (2017)

- SR and MA of 18 randomised controlled trials
- BA effective for reducing depression symptoms for **older people in the community** (55 and older)
- Larger studies needed



## Tindall et al. (2017)

- SR and MA of 3 randomised controlled trials and 7 pre-post studies
- Examining BA for **younger people** (18 and below)
- BA may be effective, but more studies with better methodology are needed



Zabihi et al. (2020)

- SR & MA of BA for depression in **informal caregivers**
- 12 randomised controlled trials
- BA reduces depression symptoms after intervention and at 1-year follow-up





Mir et al. (2015)

- Qualitative study on BA adapted for **muslim communities**
- Incorporating religious beliefs into the intervention narrative
- Interviews showed the intervention as acceptable and feasible



Moradveisi et al. (2013)

- Comparing BA vs antidepressant medication in **routine clinical practice in Iran**
- More effective and better retention than antidepressant medication
- More effective in patients with more severe depression

Bryant et al. (2017)

- Randomised controlled trial of brief BA for **women with a history of gender-based violence in Kenya**
- Provided by lay workers from the community after 8 days of training
- Moderate reductions in psychological distress maintained at 3-month follow-up

# global mental health



## INTERVENTIONS

### REVIEW

The potential of low-intensity and online interventions for depression in low- and middle-income countries

C. L. H. Bockting<sup>1\*</sup>, A. D. Williams<sup>1</sup>, K. Carswell<sup>2</sup> and A. E. Grech<sup>3</sup>



[World Psychiatry](#). 2018 Jun; 17(2): 226–227.

doi: [10.1002/wps.20532](https://doi.org/10.1002/wps.20532)

PMCID: PMC5980618

PMID: [29856556](https://pubmed.ncbi.nlm.nih.gov/29856556/)

## Scaling up psychological treatments for common mental disorders: a call to action

[Daisy R. Singla](#),<sup>1,2</sup> [Giuseppe Raviola](#),<sup>3,4</sup> and [Vikram Patel](#)<sup>3,5</sup>

# **Efficacy of LI interventions during crisis periods**



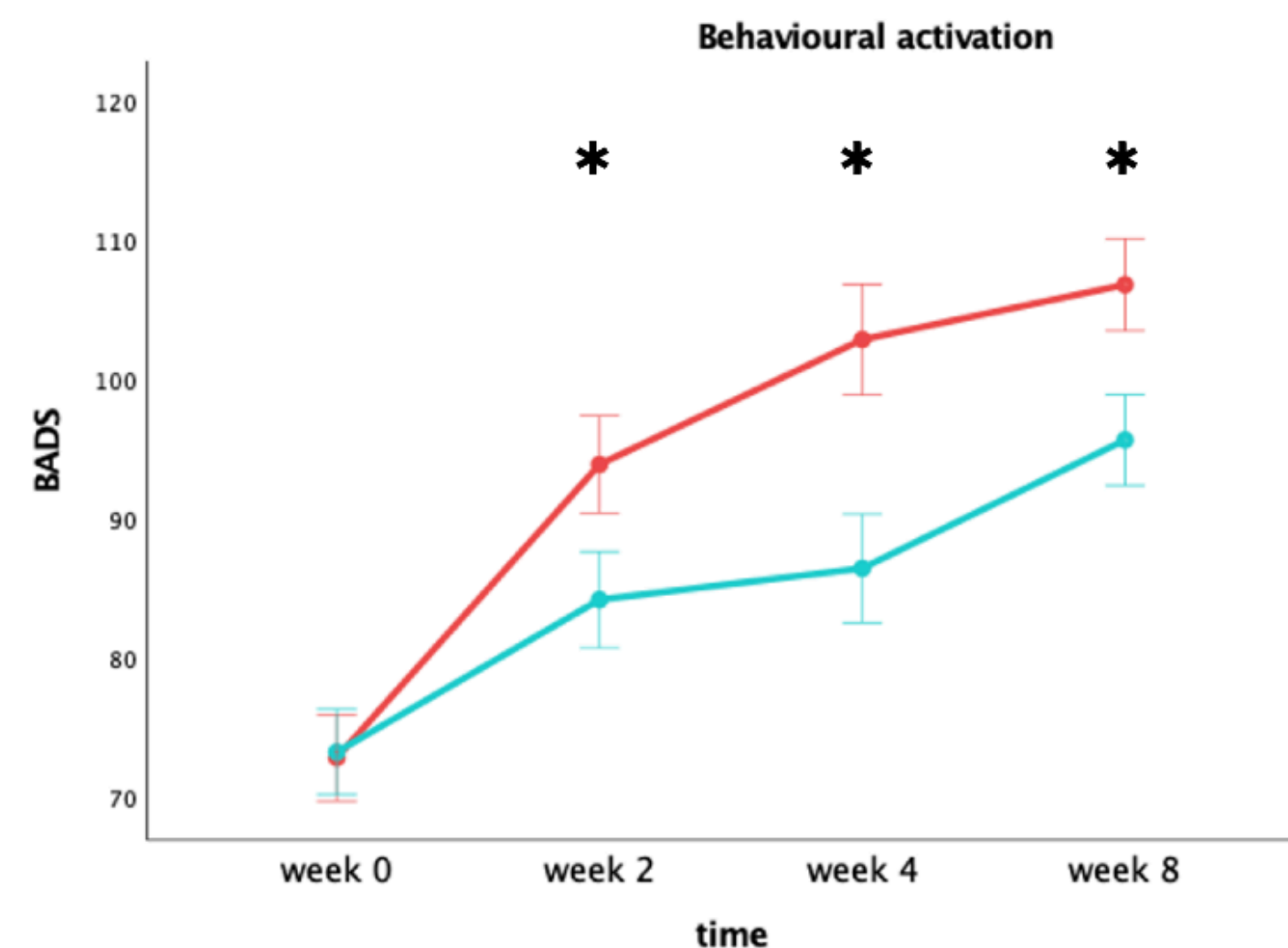
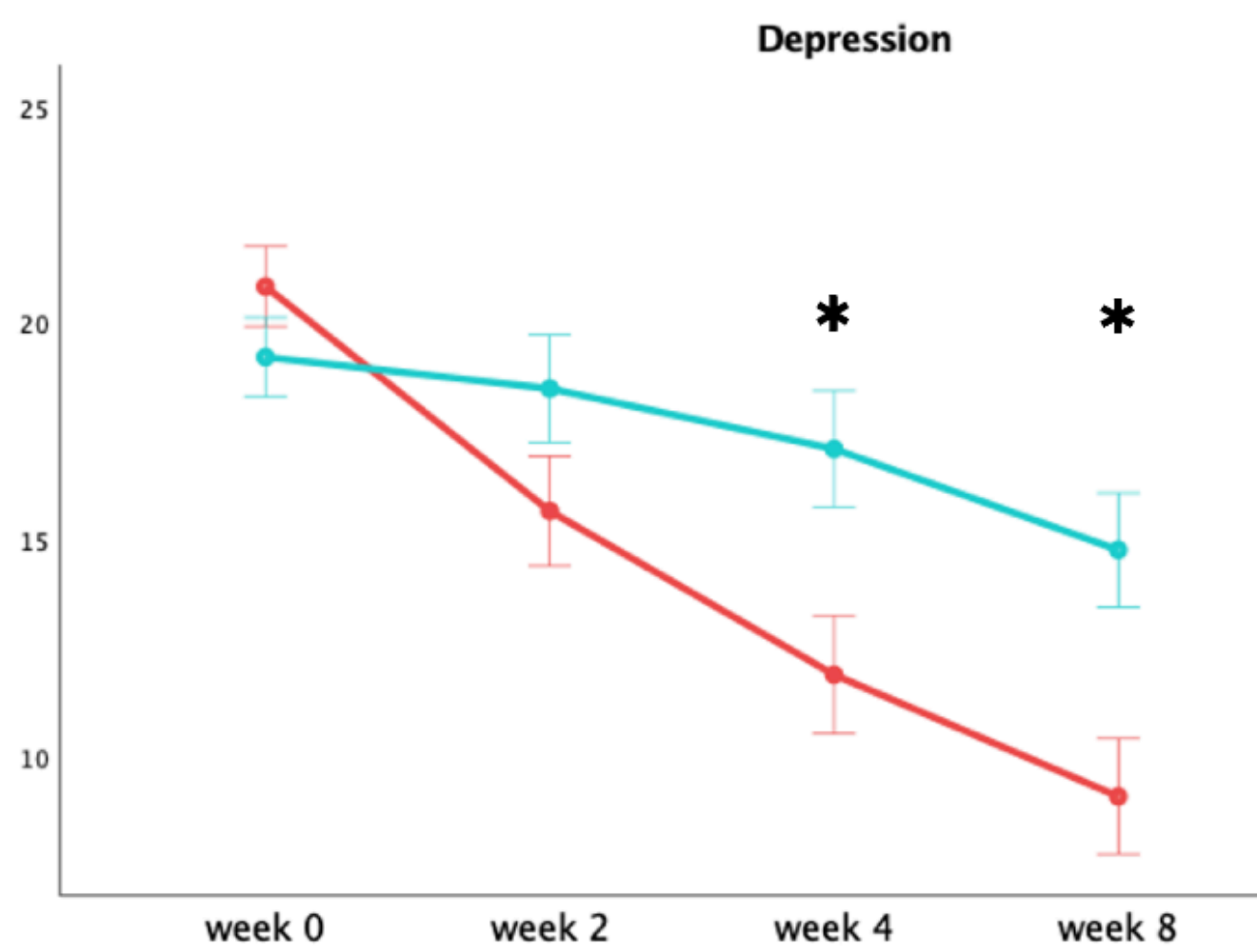
Ruzickova et al. (2021, in press)

- 4-week online BA administered by non-specialists after 15h of training
- BA remains effective **even when activity options are significantly limited** due to social distancing
- Significant reduction in depression + anhedonia and increase in activation + social support
- Benefits remained at one-month follow-up
- BA may be particularly appropriate for **societal crisis periods** with increased mental health burden

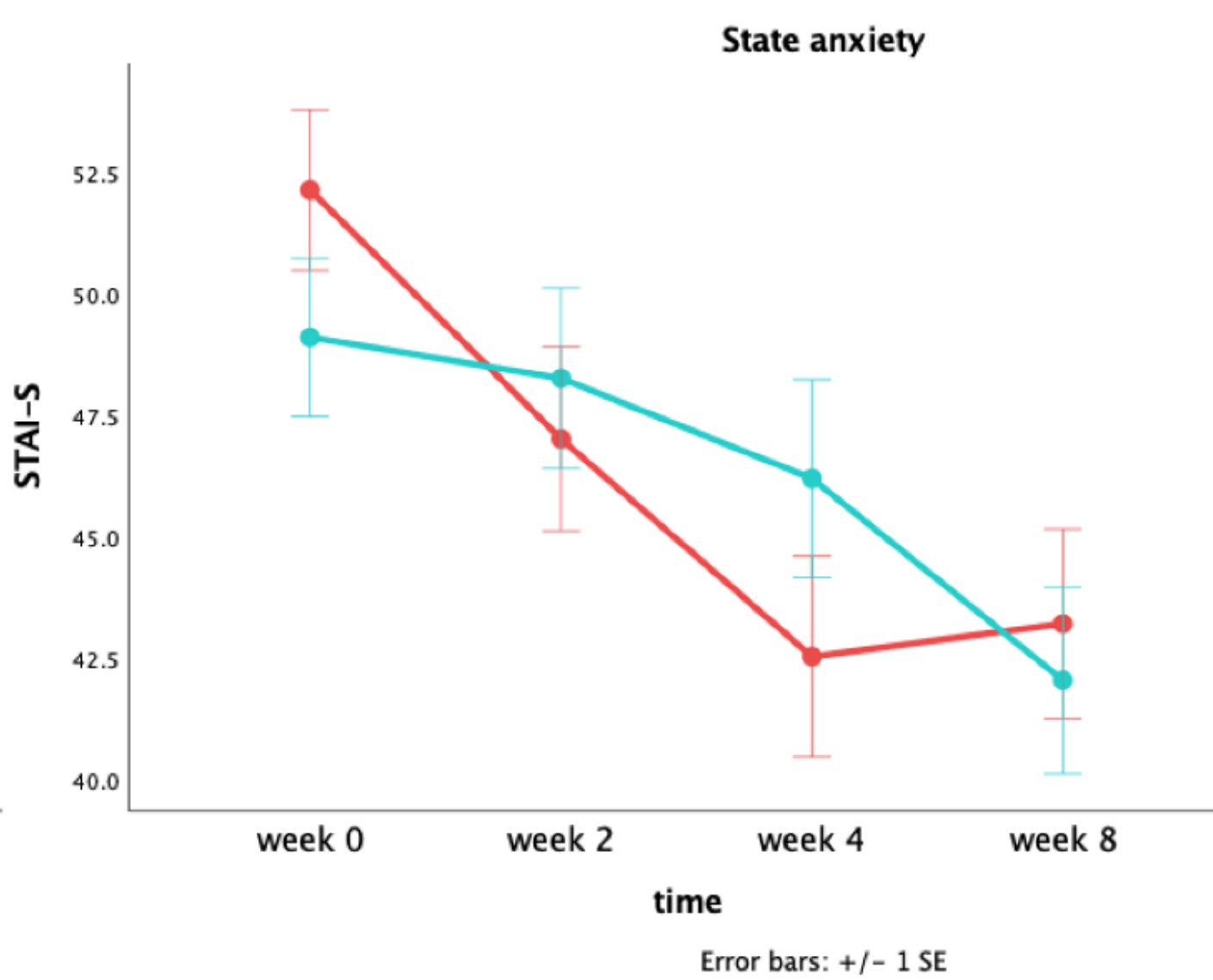
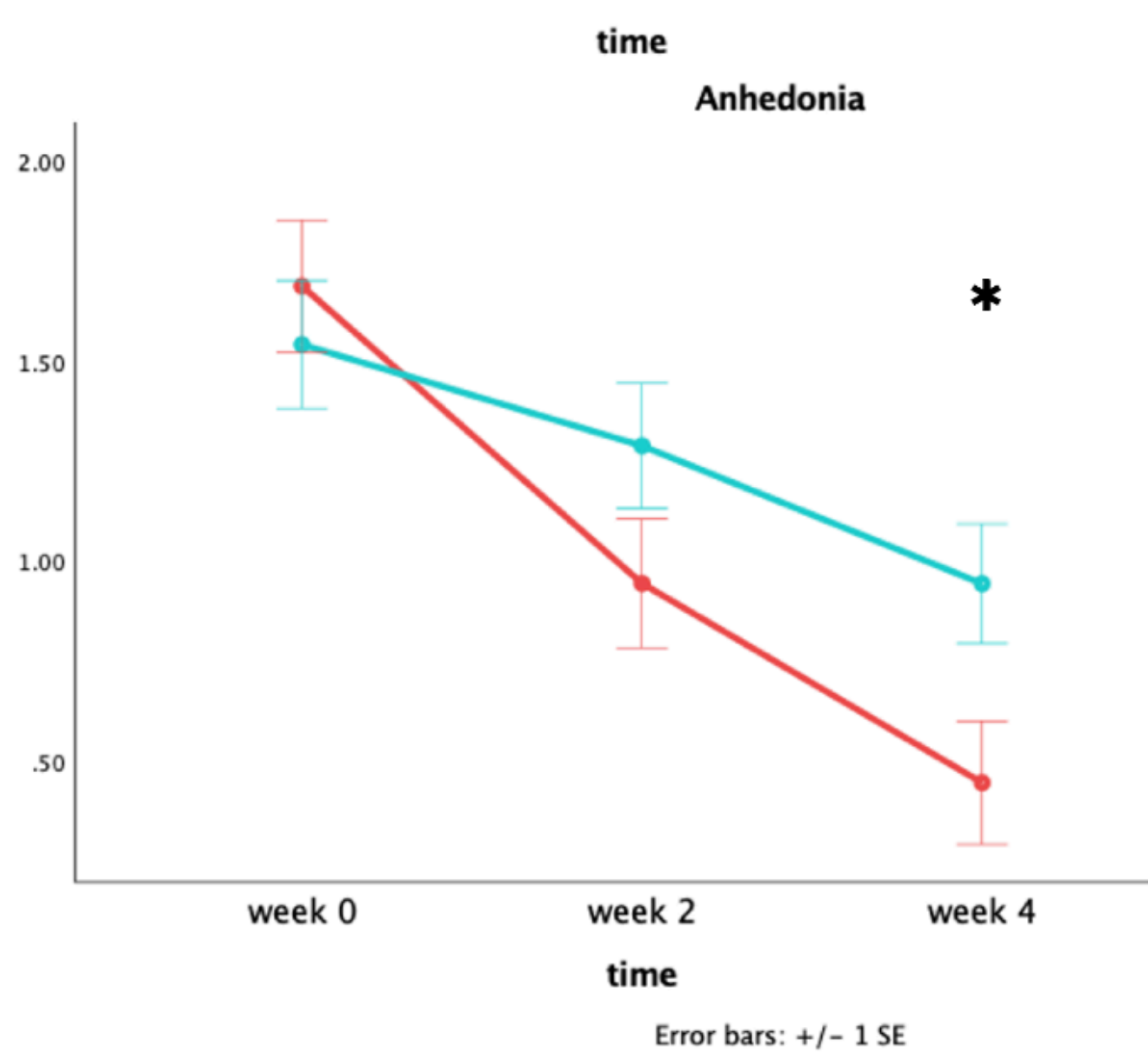


**Low in mood and activity  
during covid-19?**

**Sign up to our online  
ActivStudy!**

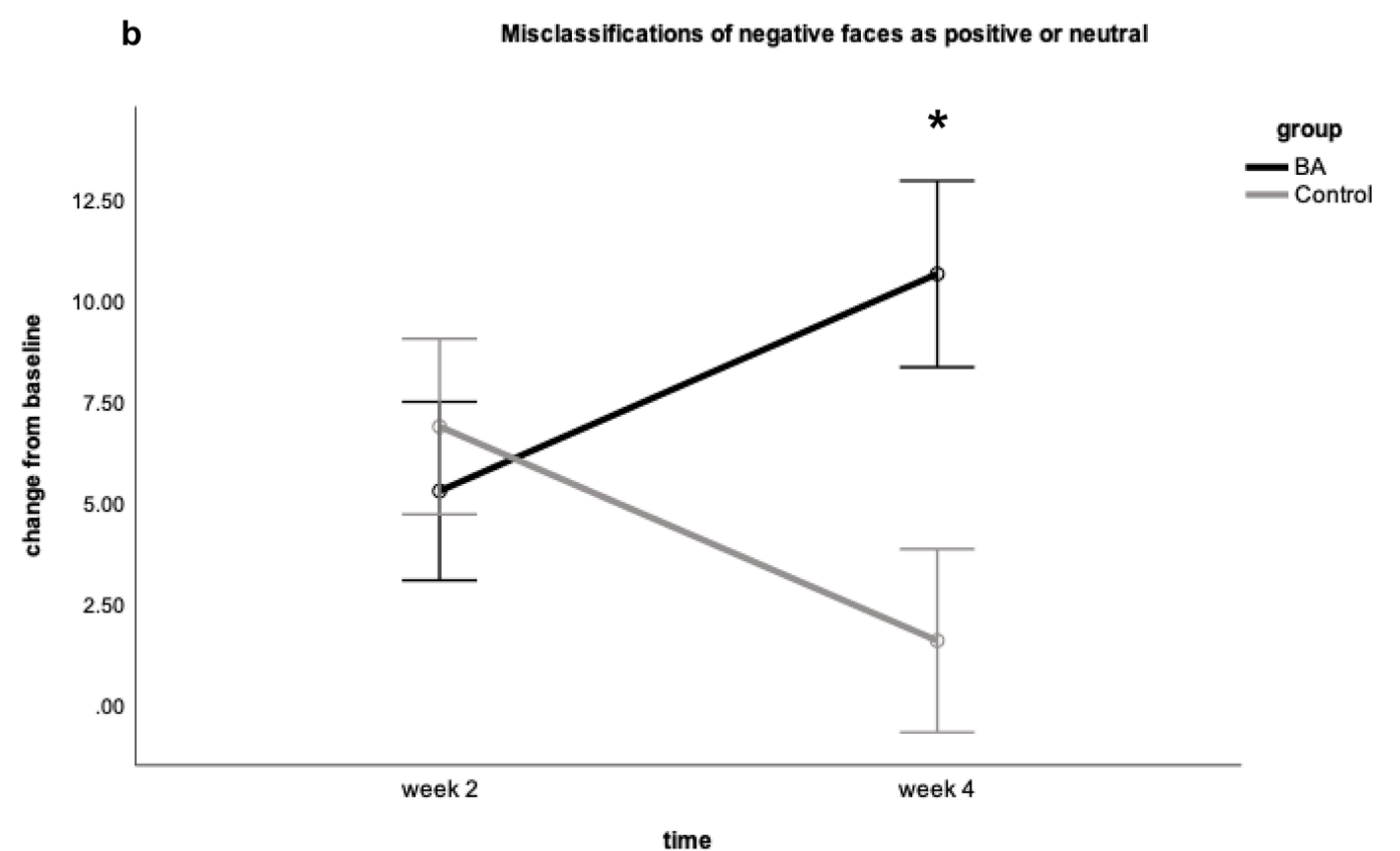


**group allocation**  
 BA  
 Control



Error bars: +/- 1 SE

Error bars: +/- 1 SE



**group**  
 BA  
 Control

# Efficacy of LI interventions for anxiety



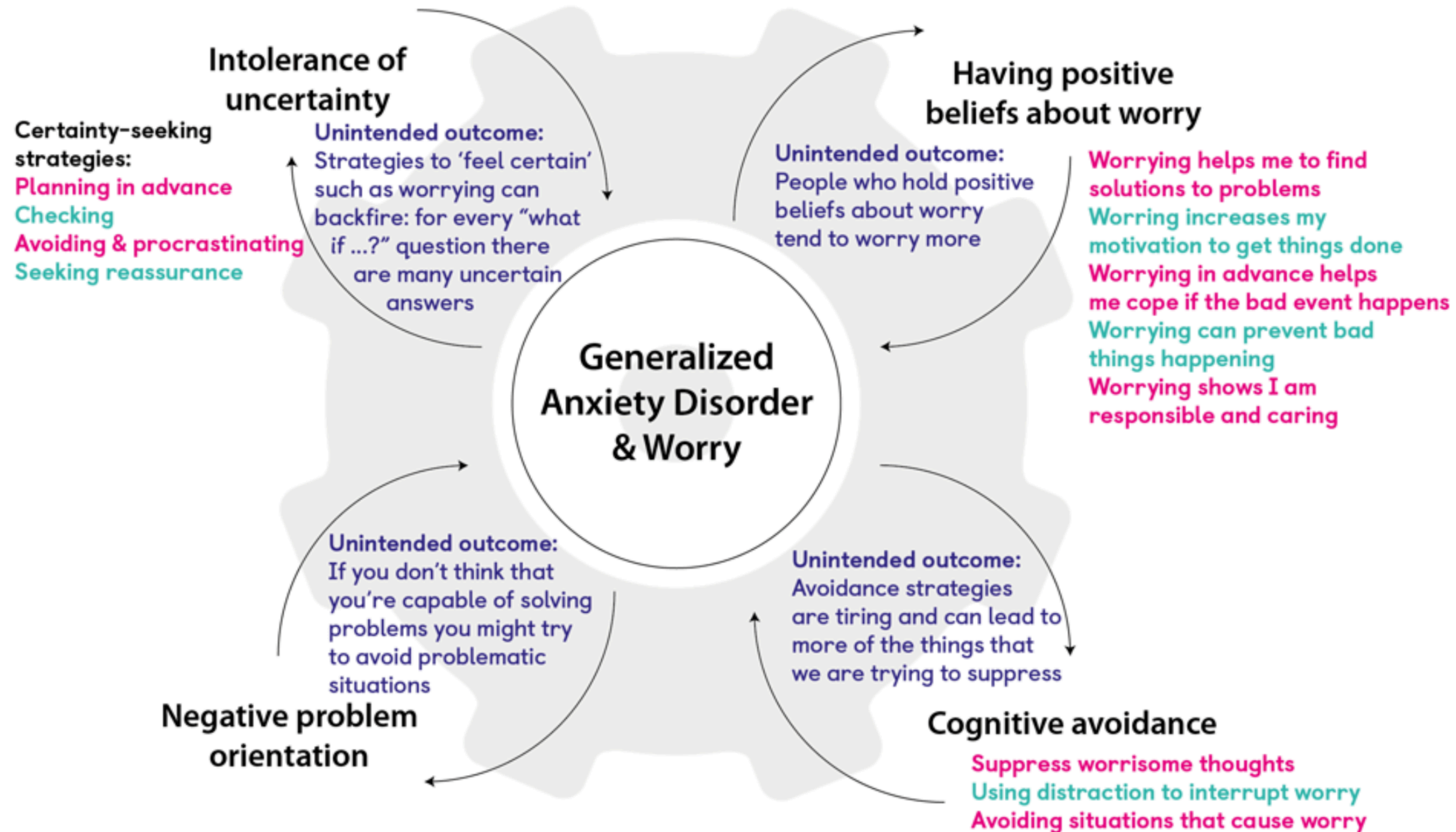
Chen et al. (2013)

- 8 weeks of group BA vs passive control for **excessive worry** (transdiagnostic treatment)
- daily activity monitoring, identifying avoidant behaviours, goal setting
- significant (but small) effects on excessive worry, intolerance of uncertainty, cognitive avoidance, problem solving
- however, no significant effects on anxiety or stress symptom scores
- possible similarity between BA and exposure treatments in anxiety?
- other strategies probably needed for a larger effect - e.g. active problem-solving training, examining core beliefs, “worry time”, relaxation





## What keeps generalized anxiety disorder (GAD) going?



Hopko et al. (2016)

- BA found effective for anxiety symptoms in 70 breast cancer patients
- Pre-post design without a control group

Essau et al. (2014)

- BA found effective for anxiety symptoms in 60 school children
- Pre-post design without a control group

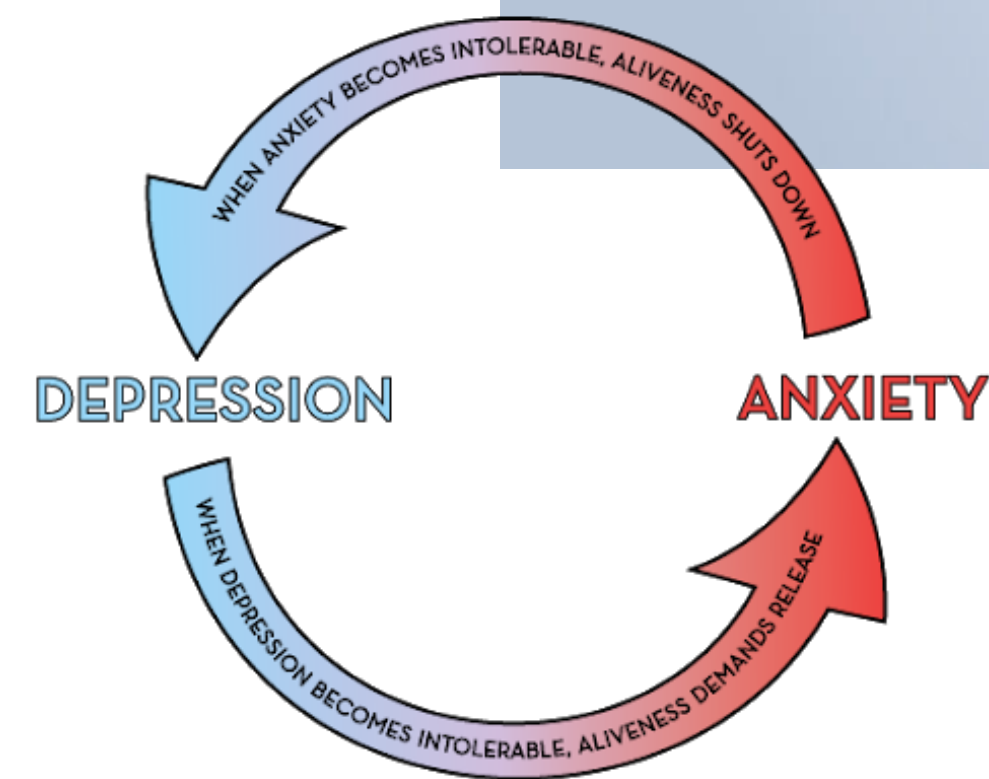


Hopko et al. (2016)

- BA found effective for anxiety symptoms in 70 breast cancer patients
- Pre-post design without a control group

Essau et al. (2014)

- BA found effective for anxiety symptoms in 60 school children
- Pre-post design without a control group



## Ali et al. (2017)

- Longitudinal cohort of over **400** patients
- 50% participants found to relapse within 1 year, particularly if they had residual symptoms at the end of treatment
- Compare to relapse rates from CBT (30%) or antidepressant medication (76%) as found by Hollon et al. (2005)
- Or mindfulness based cognitive therapy (40%) as found by Piet and Hougaard (2011)
- Recommend that patients are treated until residual symptoms are gone and follow-up care is provided



Behaviour Research and Therapy

Volume 94, July 2017, Pages 1-8



---

How durable is the effect of low intensity CBT for depression and anxiety? Remission and relapse in a longitudinal cohort study

*“We suggest taking the long view, recognising that problems like depression often have to be managed as recurrent long-term conditions.”*

## Remaining questions...

- Which people are most likely to benefit from LI interventions vs other treatments?
- Which people are most likely to relapse?
- What is the role of severity, comorbidity, age of onset, demographic factors..?
- Can LI interventions be effective when administered repeatedly?
- Can they be effectively combined with other treatments to reduce risk of relapse - e.g. medication or other CBT components?

## A note on activation & grief-related avoidance

- **Prolonged** avoidance of painful thoughts, emotions or physical reminders is associated with worse mental and physical health outcomes in grief (see Baker et al., 2017 for review)
- Avoidance mediated link between grief-related rumination (repetitive thinking about negative past experiences) and depression (Eisma et al., 2013)
- Rumination as Avoidance Hypothesis (Stroebe et al., 2007) - repeated analysis of the past impedes acceptance and “exposure” to present reality
- Internet-based behavioural activation may facilitate gradual exposure to loss-related stimuli as well as other enriching experiences (Eisma et al., 2015)
- But care should perhaps be taken to avoid facilitating further avoidance through purely loss-avoiding activities



# **Efficacy of LI interventions for substance abuse**



Martinez-Vispo et al. (2018)

- SR of BA for depression comorbid with **substance use**
- 6 randomised controlled trials, 2 pre-post designs
- smoking, alcohol, opiate addiction
- BA improved substance use outcomes in 7/8 and improved depression in 6/8 studies



Focus on regularly interacting with other positively reinforcing stimuli



# **Efficacy of LI interventions for physical health problems**



Uphoff et al. (2020)

- Cochrane systematic review of BA for depression comorbid with **non-communicable diseases** (diabetes, cancer, cardiovascular, respiratory)
- 2 randomised controlled trials
- Insufficient evidence to conclude effect (possibly due to requirement of formal diagnoses)



Hedman-Lagerlof et al. (2021)

- 12 weeks of internet-based CBT with therapist guidance for **atopic dermatitis**
- randomised controlled trial
- significant reduction in itch intensity, perceived stress, sleep problems



# Thank you for your attention!

Don't forget filling in your anonymous feedback:  
<https://forms.gle/j8K5hLY1uEoKktGb7>

