



# Long-term mental health effects of mindfulness training: 4-year follow-up of an RCT in medical and psychology students

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# Background I

Both individual and organizational interventions are effective (West et al 2016, Panagioti et al 2017)

Mindfulness is also effective (Lomas et al 2018)

Long-term follow-ups are lacking

Psychological mechanisms are barely known



# Objectives

To study...

- 1) long-term effects on *mental distress* and *well-being* (**primary outcomes**) of a 7-week Mindfulness Based Stress Reduction (MBSR) program
- 2) effects on *ways of coping*, *mindfulness* (**secondary outcomes**), and the role of *meditation practice*

# Background II

## Previous published reports on this RCT:

de Vibe et al, BMC Med Educ 2013

de Vibe et al, Mindfulness 2015

Halland et al, Coll Stud J 2015

de Vibe et al, PLoS ONE 2018

de Vibe et al. *BMC Medical Education* 2013, **13**:107  
<http://www.biomedcentral.com/1472-6920/13/107>



RESEARCH ARTICLE

Open Access

Mindfulness training for stress management: a randomised controlled study of medical and psychology students

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RESEARCH ARTICLE

Six-year positive effects of a mindfulness-based intervention on mindfulness, coping and well-being in medical and psychology students; Results from a randomized controlled trial

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# Methods/approach

Two-site RCT (Oslo and Tromsø)

N= 288 students (medical and psychology)

MBSR Intervention group (N=144)

Control group (N=144)

Follow-up:

Baseline (T0), Post intervention: 1 month (T1), 2 (T2), and 4 (T3)



# MBSR Intervention

7 weeks: 6 sessions x 1.5 hour

1 session x 6 hours

6 groups with 15 to 25 students

Booster sessions: 1.5 hour semi-annually

- 1) Simple physical and mental exercises
- 2) Teaching about mindfulness, stress, coping
- 3) Group process
- 4) CDs with daily 0.5 hour exercises



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# Variables

## Primary outcomes:

Mental distress: GHQ-12

Subjective well-being: 4 items (Life satisfaction)

## Secondary outcomes:

Coping (Ways of Coping Check List) – Avoidant / Active

Mindfulness (Five Facet Mindfulness Questionnaire)



# Statistics

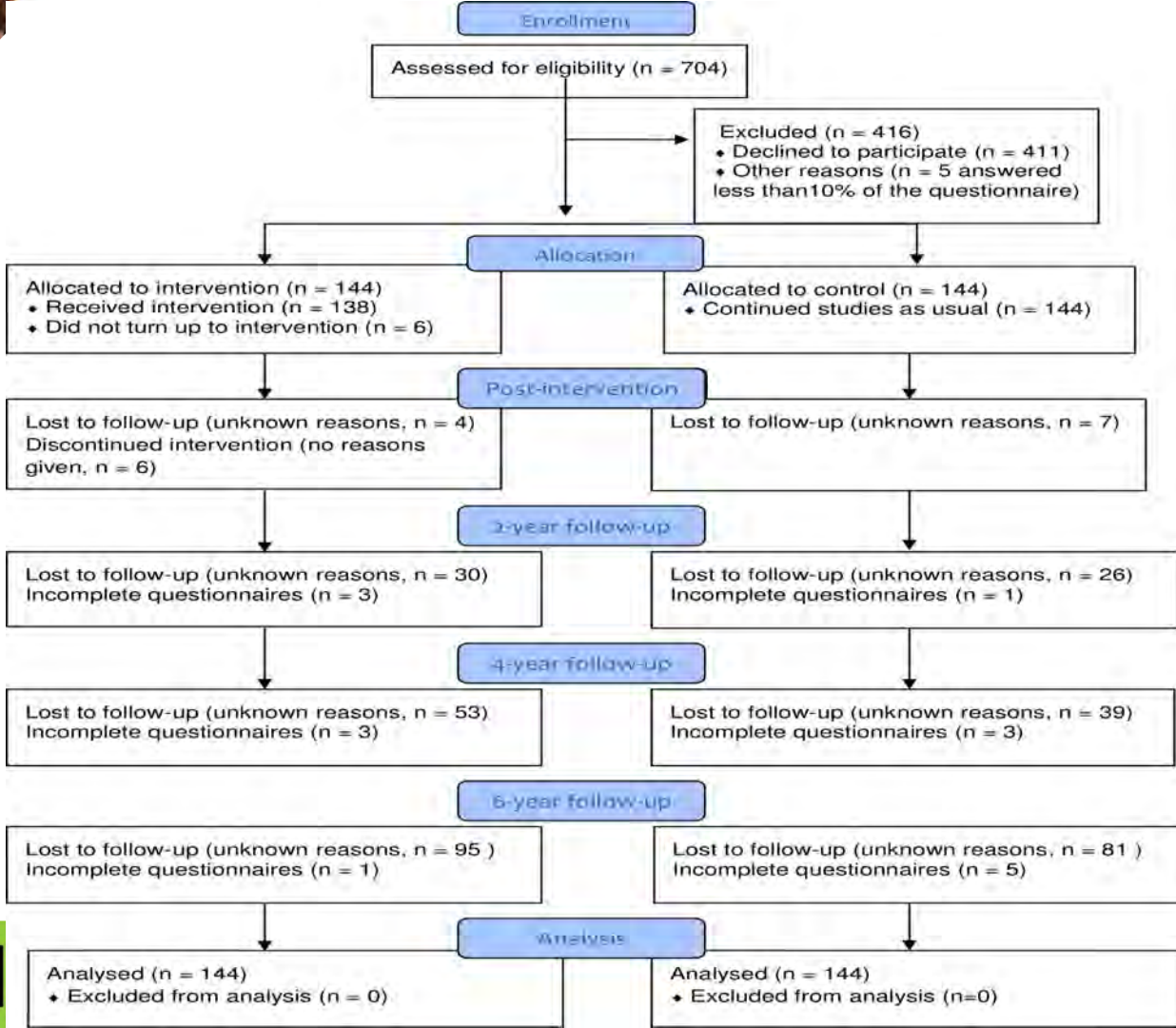
First follow-ups: Regression analyses and ANOVA

Intention to treat /Last observation forward

Later : Mixed model repeated measures (4 ys)

- Takes into account dependency of the individual measures
- Utilize better longitudinal data (missings)





(From de Vibe et al 2018)





# Results 4-year follow-up

## Primary outcomes:

Reduced mental distress (GHQ-12)\*

Cohen's  $d$  : 0.73 (1m) , 0.32 (2ys) , 0.24 (4ys)

Increased subjective well-being\*

0.46 , 0.13 , 0.13

\* *only among female students*

# Results 4-year follow-up

## Secondary outcomes:

Problem focused (Active) coping

Cohen's  $d$ : 0.30 (1m) , 0.32 (2ys) , 0.42 (4ys)

Avoidance coping

0.18 , 0.21 , 0.23

Mindfulness

(«non-reactivity») 0.29 , 0.14 , 0.24

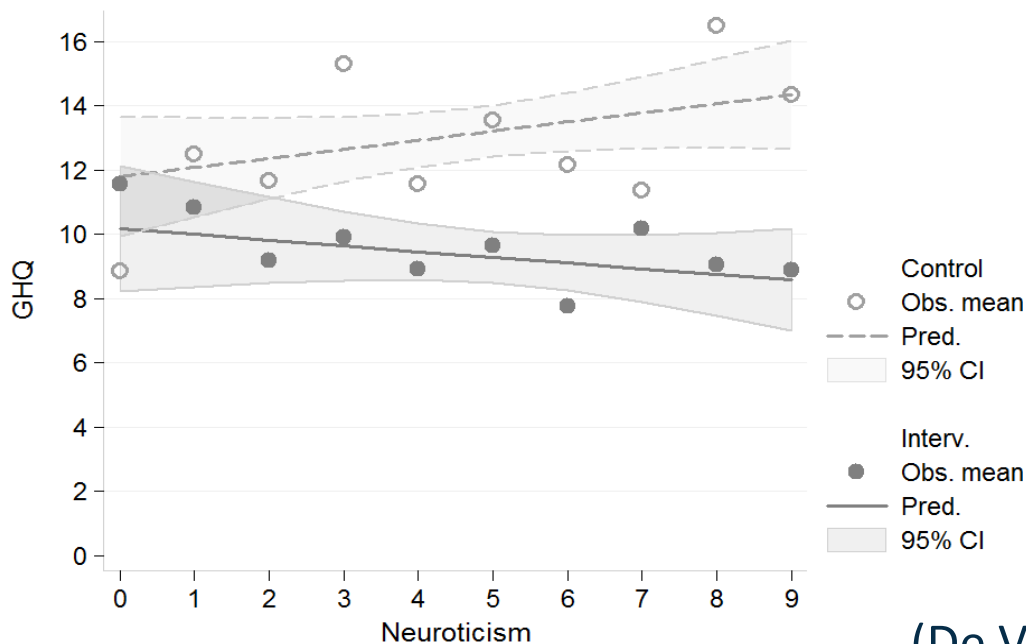


# Results 4-year follow-up

**Meditation practice** predicted long-term mindfulness scores at 1m and 4ys  
(frequency:  $p < 0.001$  & duration:  $p < 0.05$ )

Mindfulness (Dispositional) and Coping **mediated** the effects on mental distress (GHQ-12)  
- though, reversed mediation was also observed

# Other findings from the RCT: Effect moderation by personality

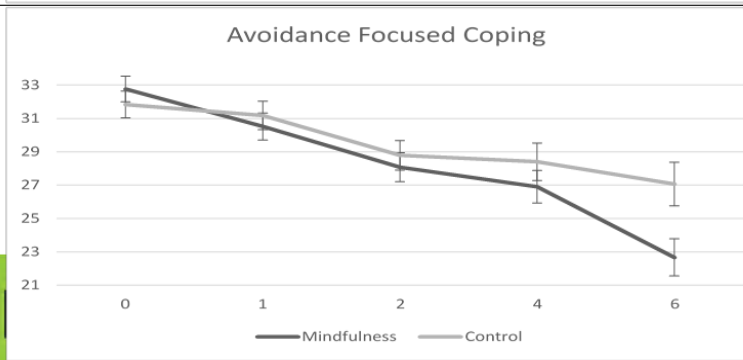
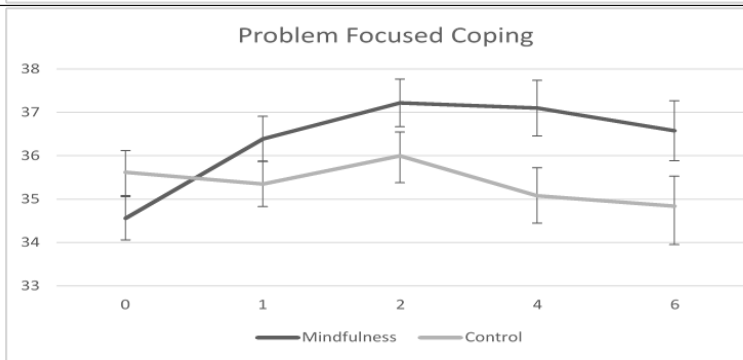
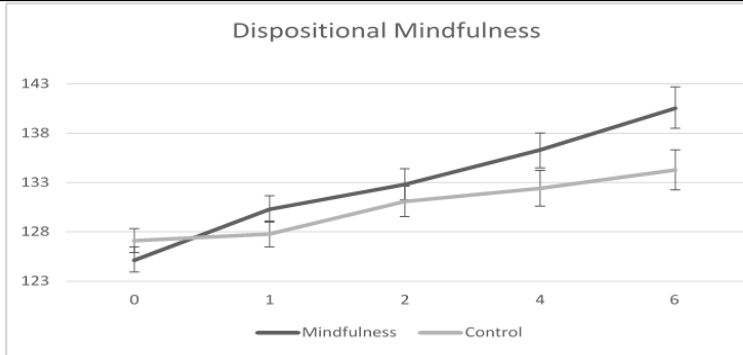


(De Vibe et al 2015)



# 6-year longitudinal effects on the secondary outcomes

(de Vibe et al 2018)



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# Limitations

Participants were self-selected – predominantly white

Lack of active control group with instructor

Contamination of control group – 36% started mindfulness/mediation/yoga during follow-up

Effect sizes were small to medium





# Conclusions 4-year study

Sustained effect on mental distress during 2 ys  
among **female students**

Enduring effects on **secondary outcomes** over 4 ys  
- *mindfulness*  
- *problem focused (active) coping*

Secondary outcomes *may* be important **mechanisms**  
of mindfulness training

