

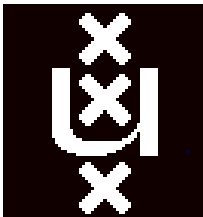
# Mechanisms of Change

## ImRs vs EMDR for ch-PTSD

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# IREM study (N=155)

## Imagery rescripting and eye movement desensitisation and reprocessing as treatment for adults with post-traumatic stress disorder from childhood trauma: randomised clinical trial

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### Background

Investigation of treatments that effectively treat adults with post-traumatic stress disorder from childhood experiences (Ch-PTSD) and are well tolerated by patients is needed to improve outcomes for this population.

### Aims

The purpose of this study was to compare the effectiveness of two trauma-focused treatments, imagery rescripting (ImRs) and eye movement desensitisation and reprocessing (EMDR), for treating Ch-PTSD.

### Method

We conducted an international, multicentre, randomised clinical trial, recruiting adults with Ch-PTSD from childhood trauma before 16 years of age. Participants were randomised to treat-

significantly decreased for both ImRs ( $d = 1.72$ ) and EMDR ( $d = 1.73$ ) at the 8-week post-treatment assessment. Similar results were seen with secondary outcome measures and self-reported PTSD symptoms. There were no significant differences between the two treatments on any standardised measure at post-treatment and follow-up.

### Conclusions

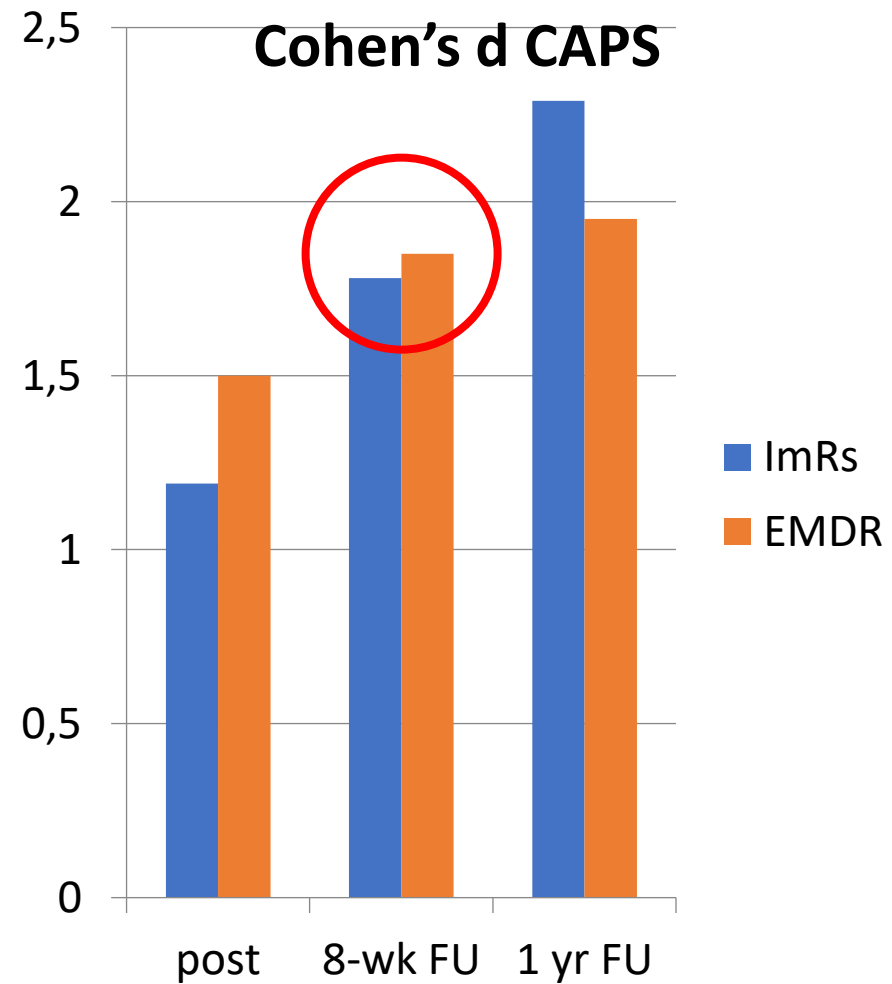
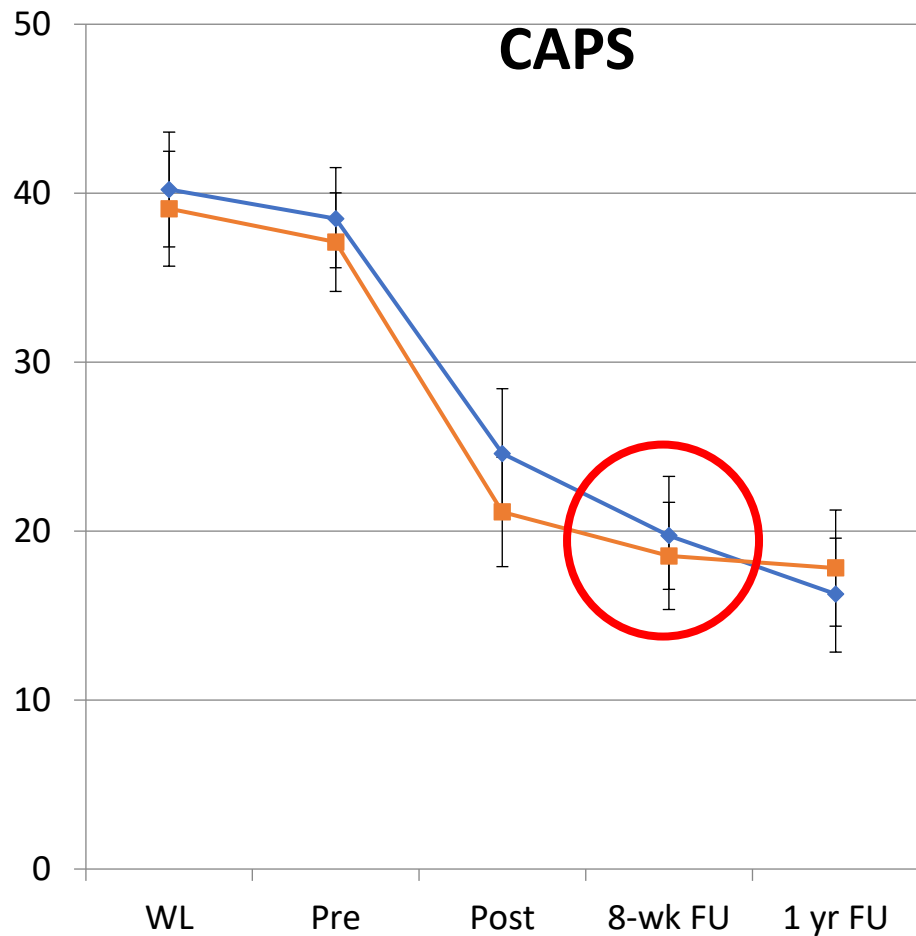
ImRs and EMDR treatments were found to be effective in treating PTSD symptoms arising from childhood trauma, and in reducing other symptoms such as depression, dissociation and trauma-related cognitions. The low drop-out rates suggest that the treatments were well tolerated by participants. The results from this study provide evidence for the use of trauma-focused treatments for Ch-PTSD.

# Design

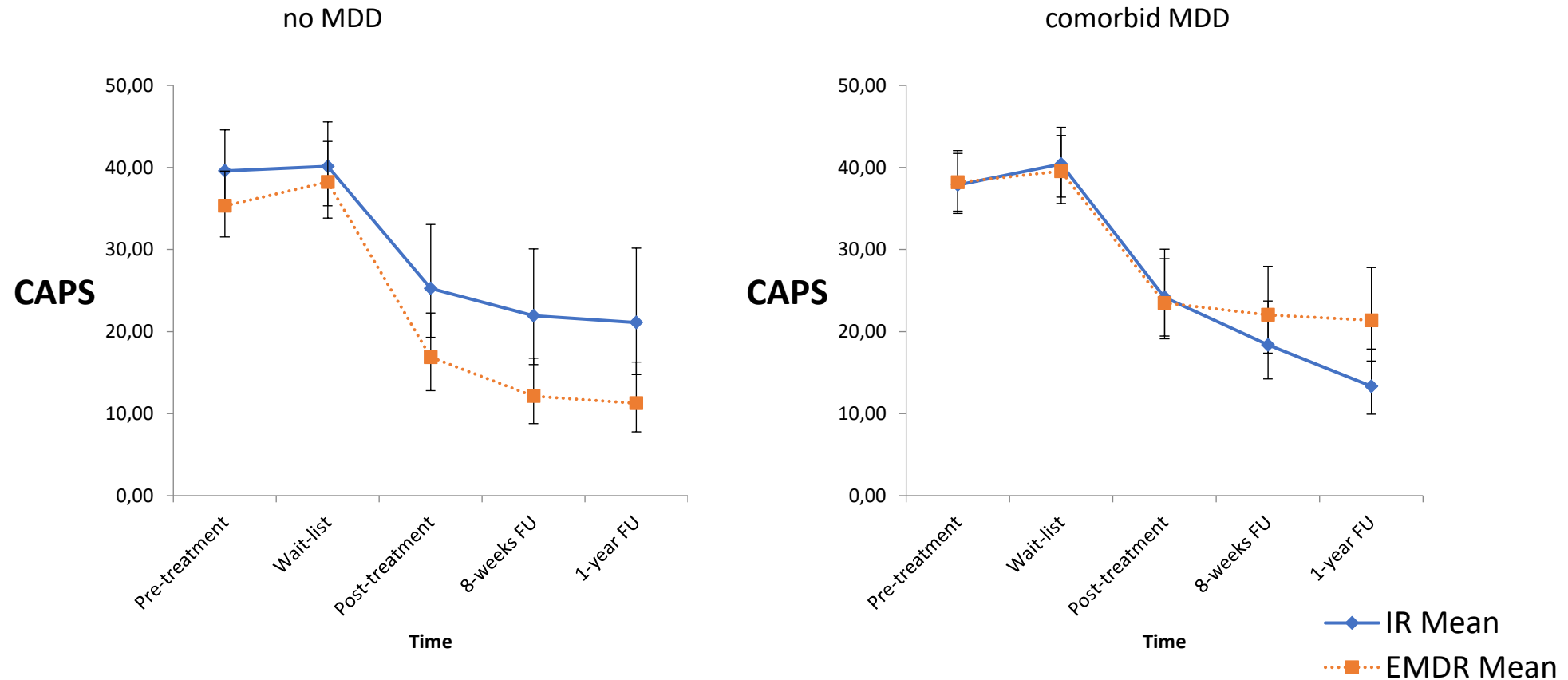
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- Multicenter:
  - 1 Australian (Perth)
  - 1 German (Lübeck)
  - 5 Dutch sites (Amstelveen, Amsterdam, Beverwijk, Heerhugowaard, Maastricht)
- 12 sessions (2 per week)
- Primary outcome: CAPS-5 total score (over all trauma's) at 8 weeks after last session
- N=155
  - 6 dropouts in each arm (7.7%)

# Primary Outcome CAPS-5 total score

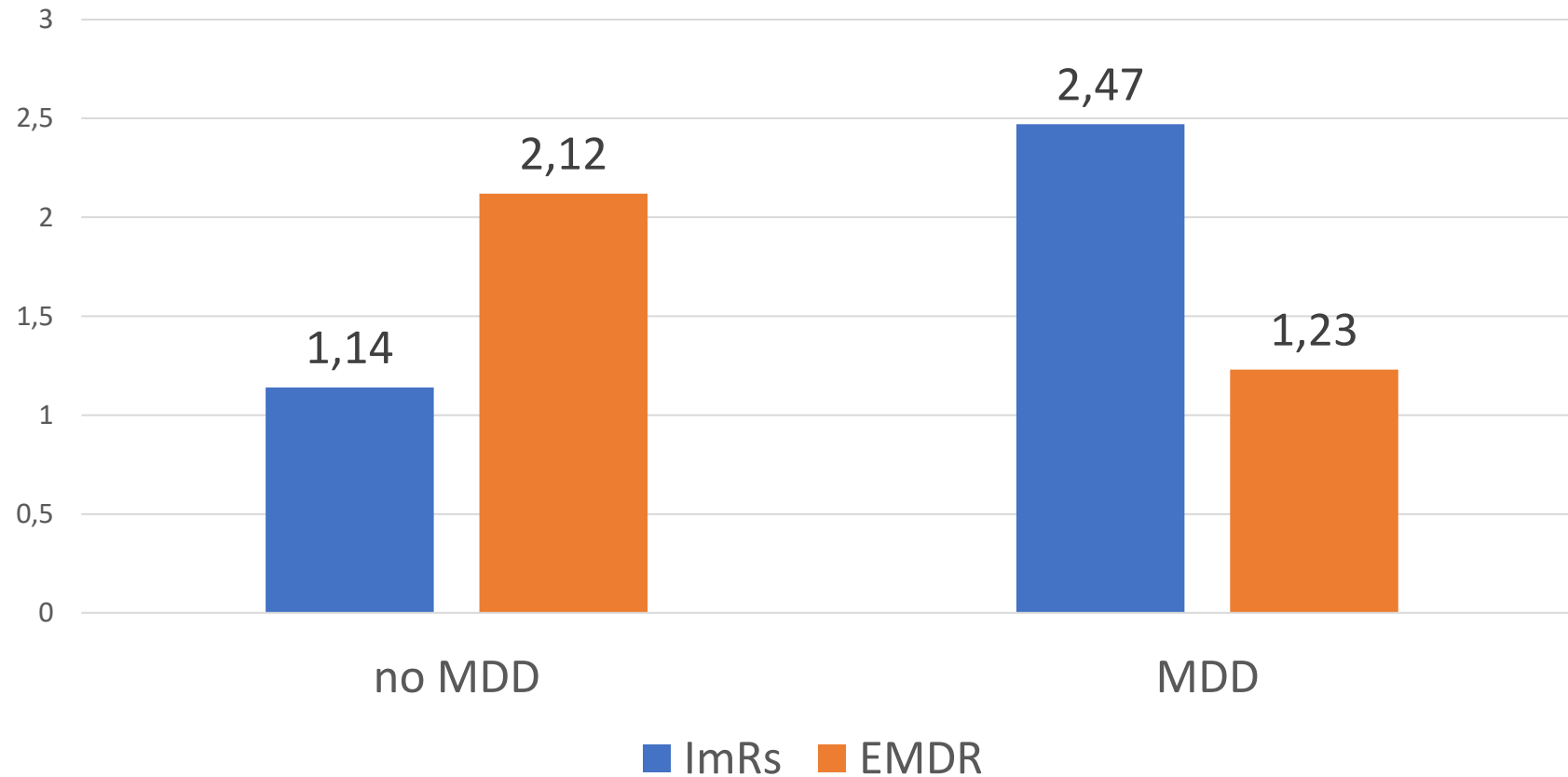


# Moderation by comorbid MDD (63% had comorbid MDD)



Interaction 8-weeks  $p = .01$ ; 1-year  $p = .001$   
Assmann et al (2021), J Clin Med, 10, 3708.

## Cohen's d at 1 yr FU



# Mechanisms of change: hypotheses

- EMDR: reduction of vividness & reduction of distress
- ImRs: reduction of encapsulated belief & reduction of distress

# Imagery task

- Participant had to imagine index trauma (eyes closed)
  - Wait
  - Pre-treatment
  - Mid-treatment
  - Post-treatment
  - 8 wk FU
  - 1 yr FU
- Ratings (0-100):
  - Vividness
  - Distress
  - Belief strength



# Granger causality

*Econometrica*, Vol. 37, No. 3 (July, 1969)

## INVESTIGATING CAUSAL RELATIONS BY ECONOMETRIC MODELS AND CROSS-SPECTRAL METHODS

BY C. W. J. GRANGER

There occurs on some occasions a difficulty in deciding the direction of causality between two related variables and also whether or not feedback is occurring. Testable definitions of causality and feedback are proposed and illustrated by use of simple two-variable models. The important problem of apparent instantaneous causality is discussed and it is suggested that the problem often arises due to slowness in recording information or because a sufficiently wide class of possible causal variables has not been used. It can be shown that the cross spectrum between two variables can be decomposed into two parts, each relating to a single causal arm of a feedback situation. Measures of causal lag and causal strength can then be constructed. A generalisation of this result with the partial cross spectrum is suggested.

# Granger causality

- From econometrics
- Change in causal factor is followed by change in effect
- Tests: time-lagged regression, controlling for previous level of dependent variable (autocorrelation) and general changes over time
- We used:
  - Multilevel analysis
  - Each variable was person-centered (removes between-subject variance)
  - 2 *df* splines to control for changes over time (nonlinear) both as fixed & random covariates
  - Central is the treatment X mechanism interaction (e.g., treatment X vividness)

# Results: Vividness

CAPS predicted by Vividness								
Model	<i>b</i>	$\beta$	<i>t</i>	se	df	<i>p</i>	95% CI	<i>d</i>
CAPS	-0.413	-.427	-11.407	0.036	288	<.001	[-0.485, -0.342]	-1.333
Vividness	-0.001	-.003	-0.094	0.015	288	.925	[-0.031, 0.028]	-0.253
Treatment	0.036	.004	0.081	0.447	146	.935	[-0.847, 0.919]	0.017
Viv*Treatment	0.050	.107	1.850	0.027	288	.065	[-0.003, 0.103]	0.217
Vividness predicted by CAPS - Reverse								
Vividness	-0.460	-.441	-10.510	0.044	280	<.001	[-0.546, -0.373]	-1.256
CAPS	0.379	.175	3.467	0.109	280	.001	[0.164, 0.594]	0.576
Treatment	1.442	.061	1.005	1.434	145	.316	[-1.393, 4.276]	0.120
CAPS*Treatment	-0.225	-.104	-1.276	0.176	280	.203	[-0.572, 0.122]	-0.153

# Results: Distress

CAPS predicted by Distress								
Model	<i>b</i>	$\beta$	<i>t</i>	se	df	<i>p</i>	95% CI	<i>d</i>
CAPS	-0.493	-.427	-12.704	0.039	288	<.001	[-0.569, -0.417]	-1.497
Distress	0.044	-.003	3.463	0.013	288	.001	[-0.019, 0.069]	0.573
Treatment	0.041	.004	0.096	0.424	146	.924	[-0.798, 0.879]	0.011
Val*Treatment	<b>0.065</b>	<b>.107</b>	<b>3.217</b>	<b>0.020</b>	<b>288</b>	<b>.001</b>	<b>[0.025, 0.106]</b>	<b>0.379</b>
Distress predicted by CAPS Reverse								
Distress	-0.420	-.454	-12.119	0.035	279	<.001	[-0.488, -0.352]	-1.451
CAPS	0.244	.098	2.323	0.105	279	.021	[-0.037, 0.450]	0.386
Treatment	1.530	.057	1.235	1.238	145	.219	[-0.918, 3.977]	0.148
CAPS*Treatment	-0.002	-.001	-0.012	0.161	279	.990	[-0.319, 0.315]	-0.001

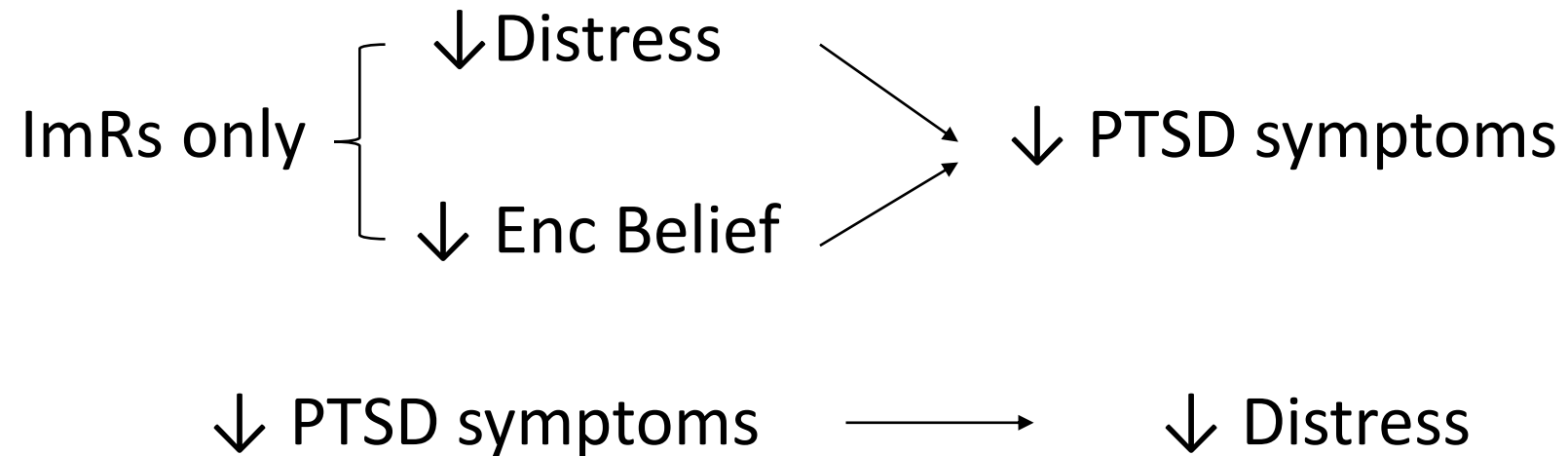
# Results: encapsulated belief

CAPS predicted by Encapsulated Belief								
Model	<i>b</i>	$\beta$	<i>t</i>	se	df	<i>p</i>	95% CI	<i>d</i>
CAPS	-0.486	-.504	-12.352	0.039	288	<.001	[-0.564, -0.409]	-1.456
Belief	0.036	.103	2.785	0.013	288	.006	[-0.010, 0.061]	.461
Treatment	0.058	.005	0.134	0.429	146	.893	[-0.790, 0.905]	.016
Bel*Treatment	<b>0.056</b>	<b>.161</b>	<b>2.779</b>	<b>0.020</b>	<b>288</b>	<b>.006</b>	<b>[0.016, 0.096]</b>	<b>.328</b>
Encapsulated Belief predicted by CAPS Reverse								
Belief	-0.394	-.414	-11.039	0.036	279	<.001	[-0.465, -0.324]	-1.322
CAPS	0.106	.040	0.983	0.108	279	.326	[-0.106, 0.319]	.163
Treatment	1.076	.037	0.862	1.248	145	.390	[-1.391, 3.542]	.103
CAPS*Treatment	-0.255	-.097	-1.552	0.164	279	.122	[-0.579, 0.069]	-.186

# Summary

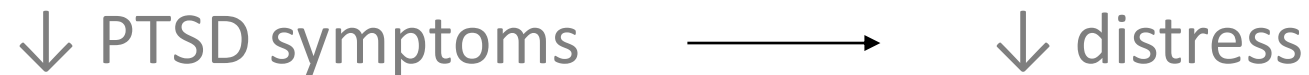
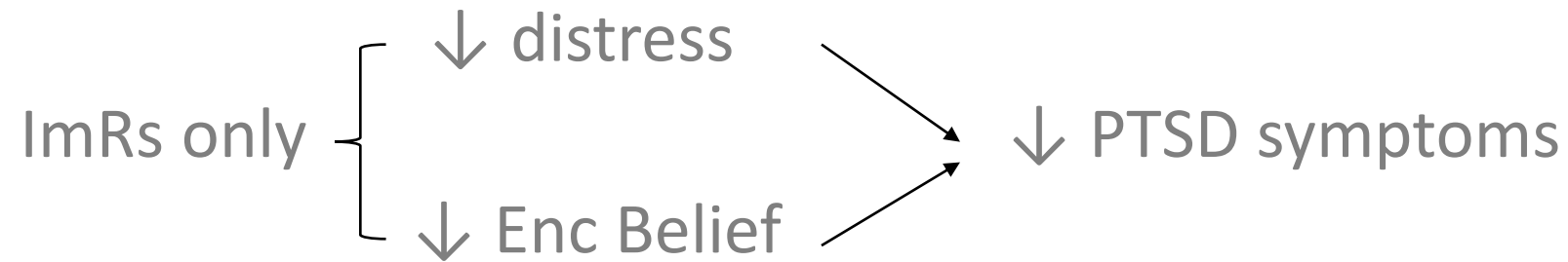
# Summary

- Mechanisms of change of ImRs via Distress & Encapsulated Belief supported (significant in ImRs, *N.S.* in EMDR)

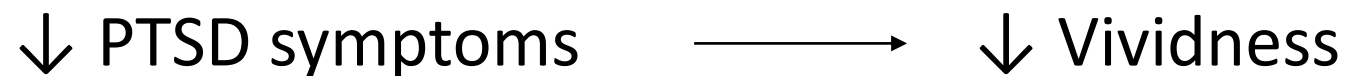
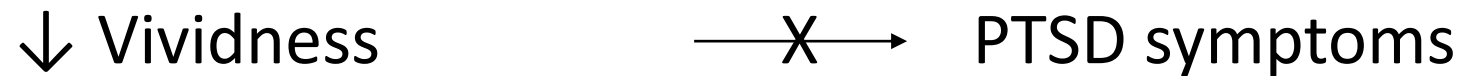


# Summary

- Mechanisms of change of ImRs thru distress & Encapsulated Belief supported (significant in ImRs, *N.S.* in EMDR)



- No support for Vividness as mechanism of change in EMDR





Dank voor uw aandacht

Vragen?