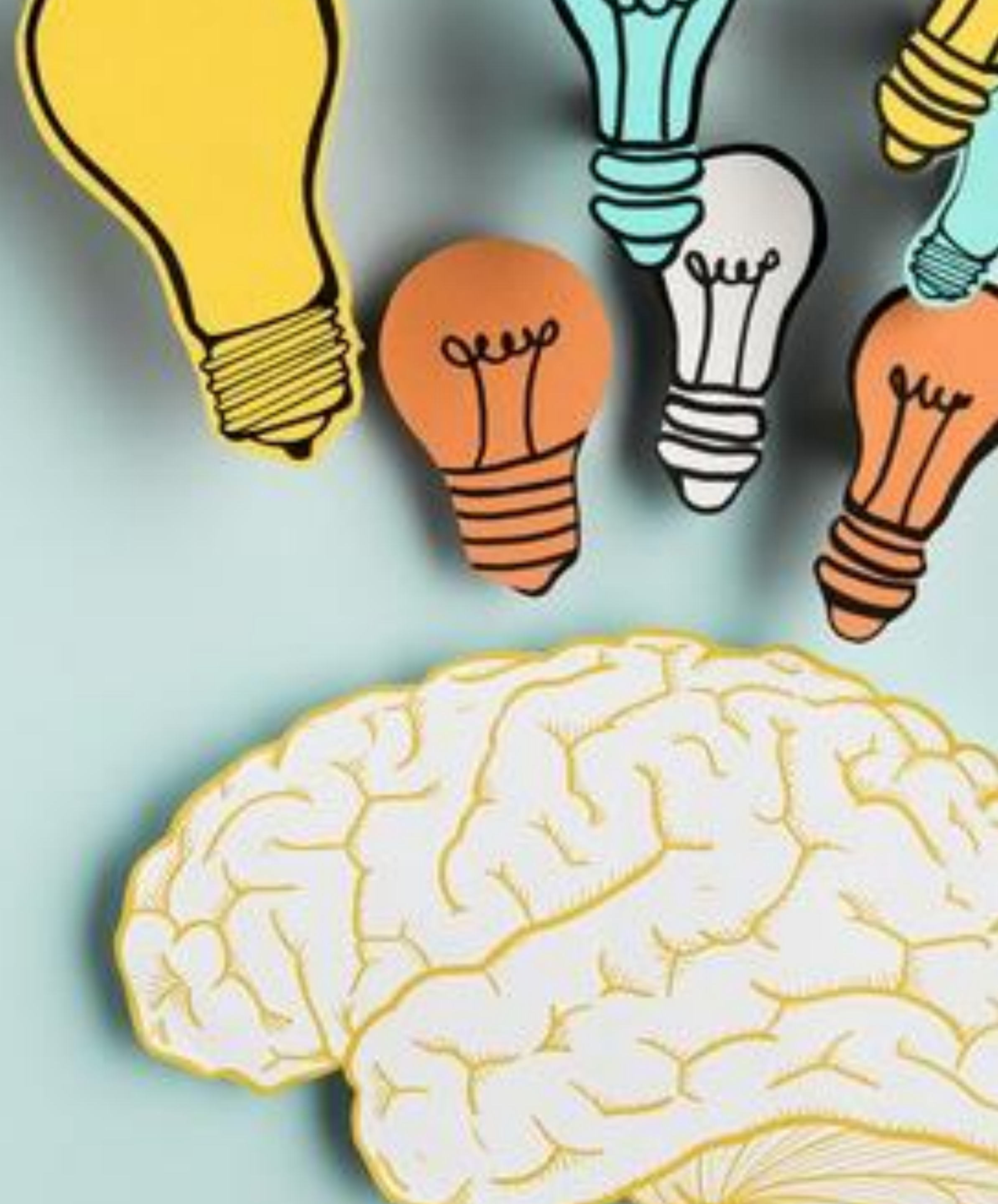


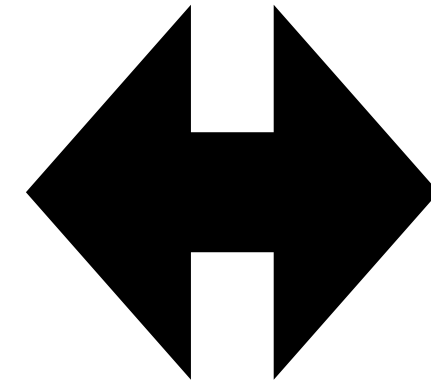
Cognitive effects and ECT-related anxiety during Maintenance ECT

Jasmien Obbels

NACT - 25 May 2022



- High response and remission rates (Kellner et al., 2020)
- Older age predicts better outcome (van Diermen et al., 2018)
- Safe and well-tolerated (Kellner et al., 2020)

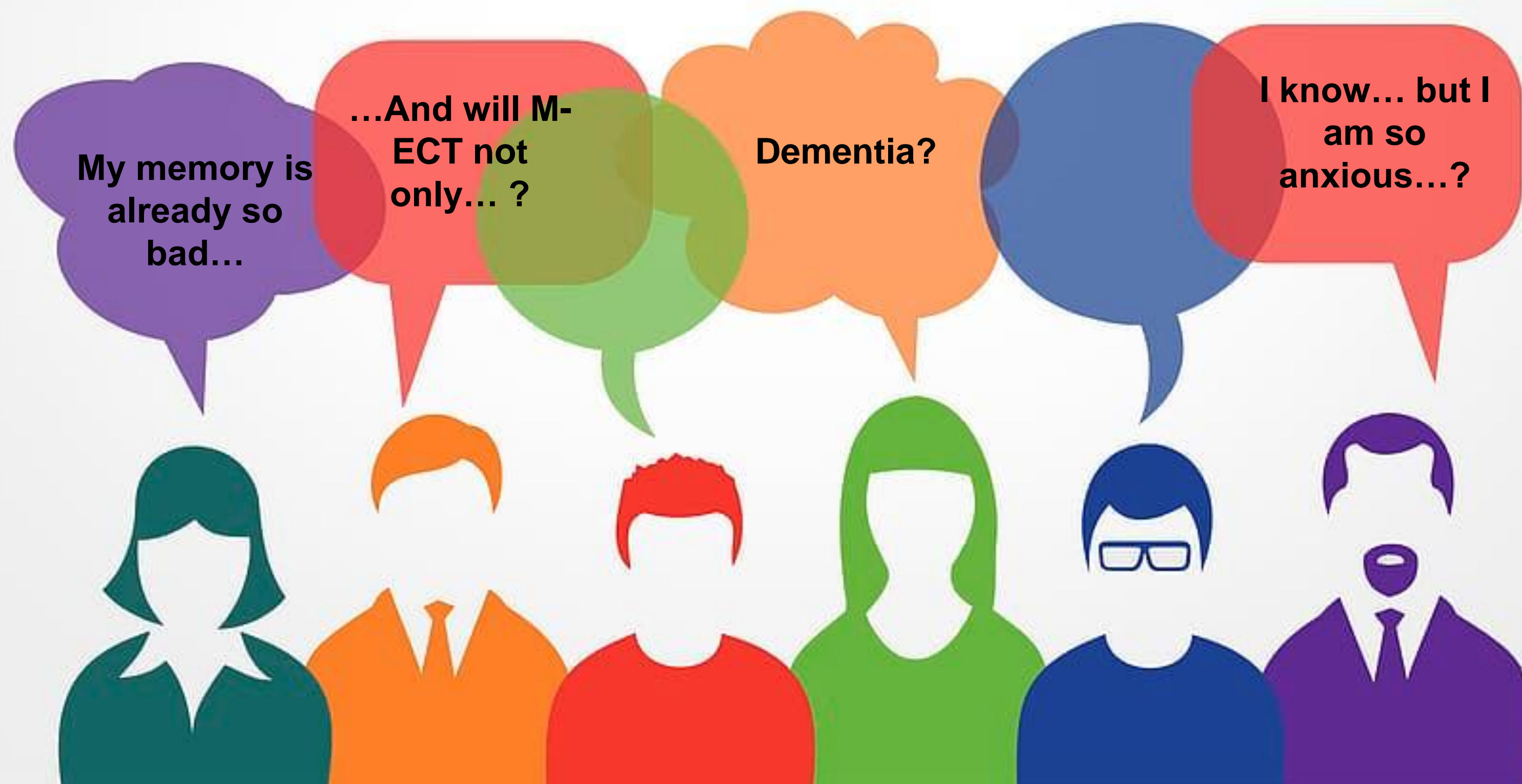


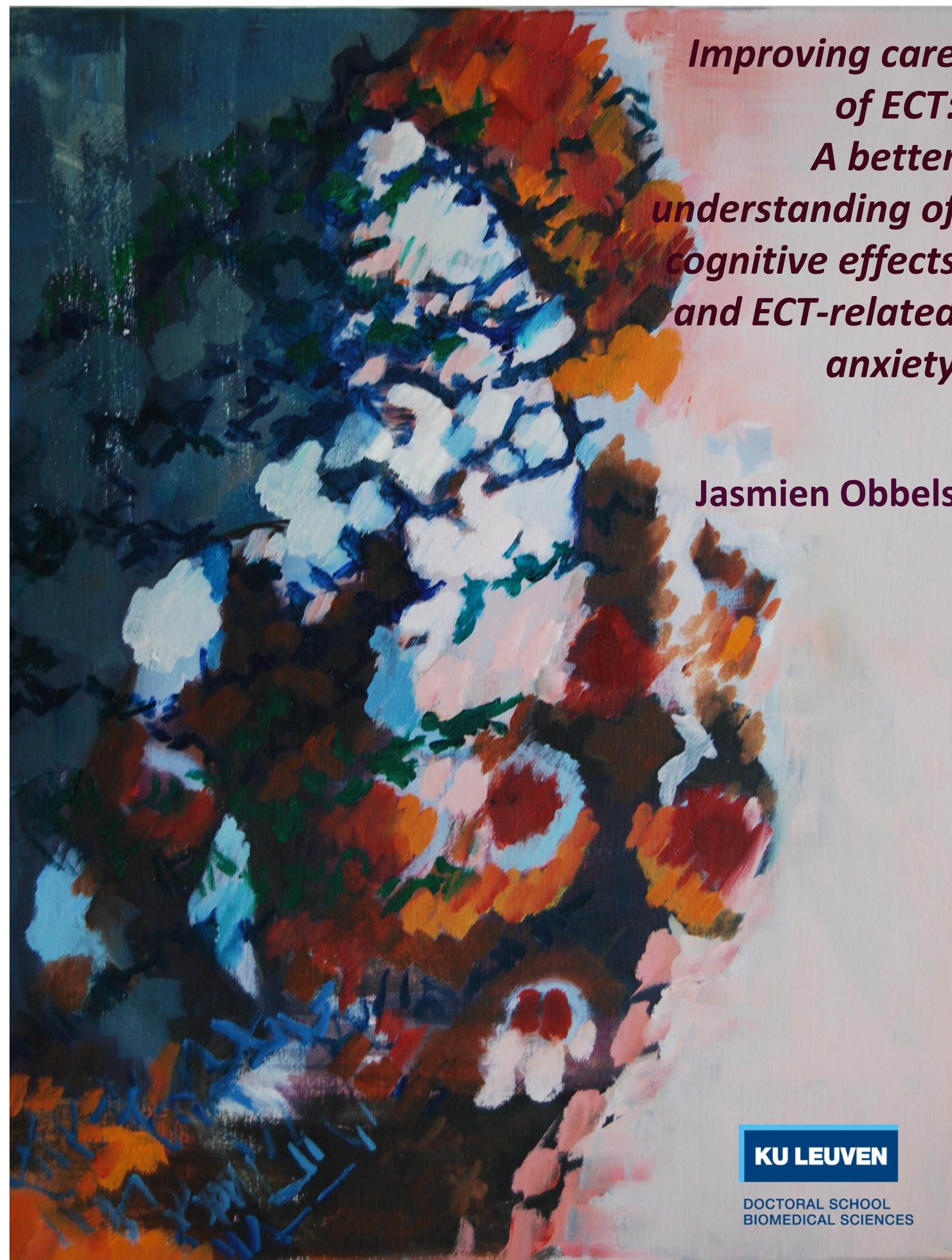
- ECT remains stigmatised!
- **Cognitive side-effects**
- **Anxiety of patients for their treatment**



Clinical practice

*“M-ECT will worsen patients’
experience or side effects”*





Pascal Sienaert



Esmée Verwijk

Part 1: Cognitive effects

- Permanent memory loss
- Temporary memory loss
- Brain damage

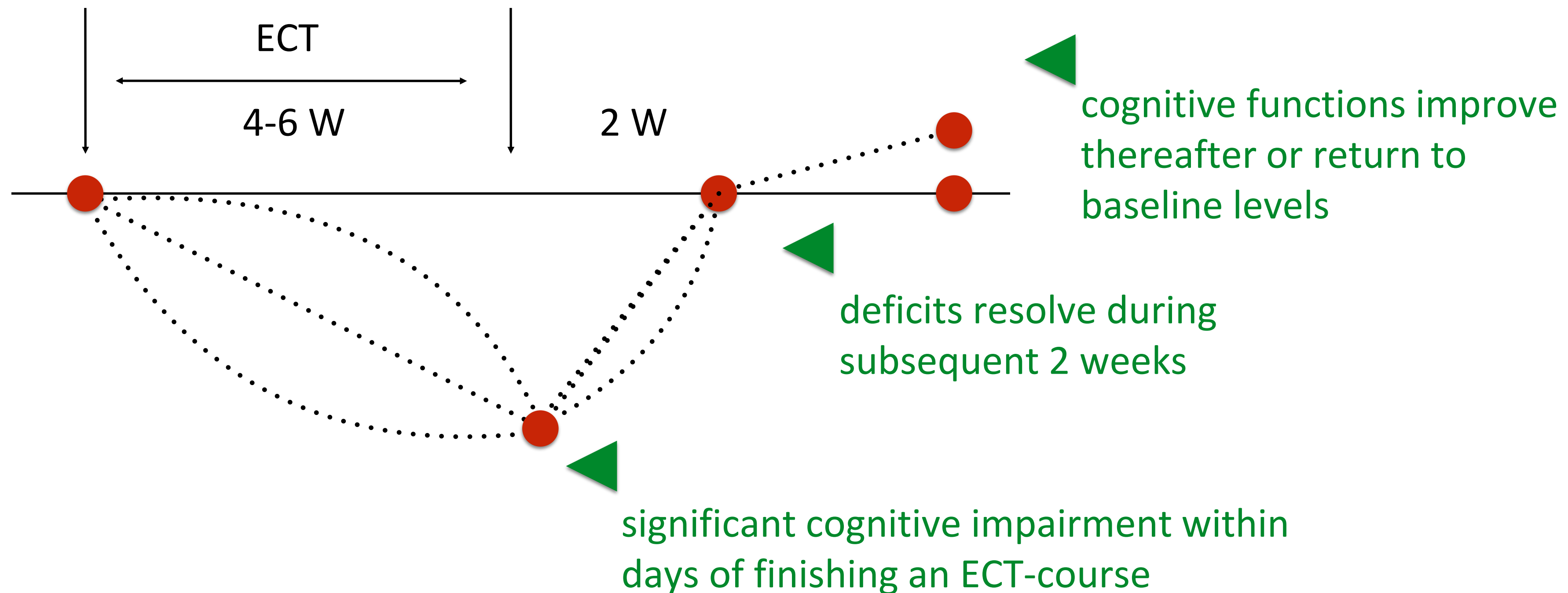


Obbels J, Vanbrabant K, Verwijk E, Bouckaert F, Vansteelandt K, Sienaert P. (2020). Monitoring electroconvulsive therapy-related anxiety: The ECT-Related Anxiety Questionnaire. *The Journal of ECT*, 36, 180-186.

Obbels J, Verwijk E, Bouckaert F, Sienaert P. (2017). ECT-related anxiety: a systematic review. *The Journal of ECT*, 33, 229-236.

Cognitive effects

Semkovska & McLoughlin, 2010; Landry et al., 2020



Semkovska & McLoughlin. Objective cognitive performance associated with electroconvulsive therapy for depression: a systematic review and meta-analysis. *Biol Psychiatry* 2010, 68, 568

Landry et al. Current practices of electroconvulsive therapy in mental disorders. A systematic review and meta-analysis of short and long-term cognitive effects. *J ECT* 2020.

During M-ECT?

- Kirov et al. (2016)
- Luccarelli et al. (2020)
- Lisanby et al. (2022)
- Obbels et al. (2018;2020)
- Clinical message



During M-ECT?

Kirov et al. (2016)

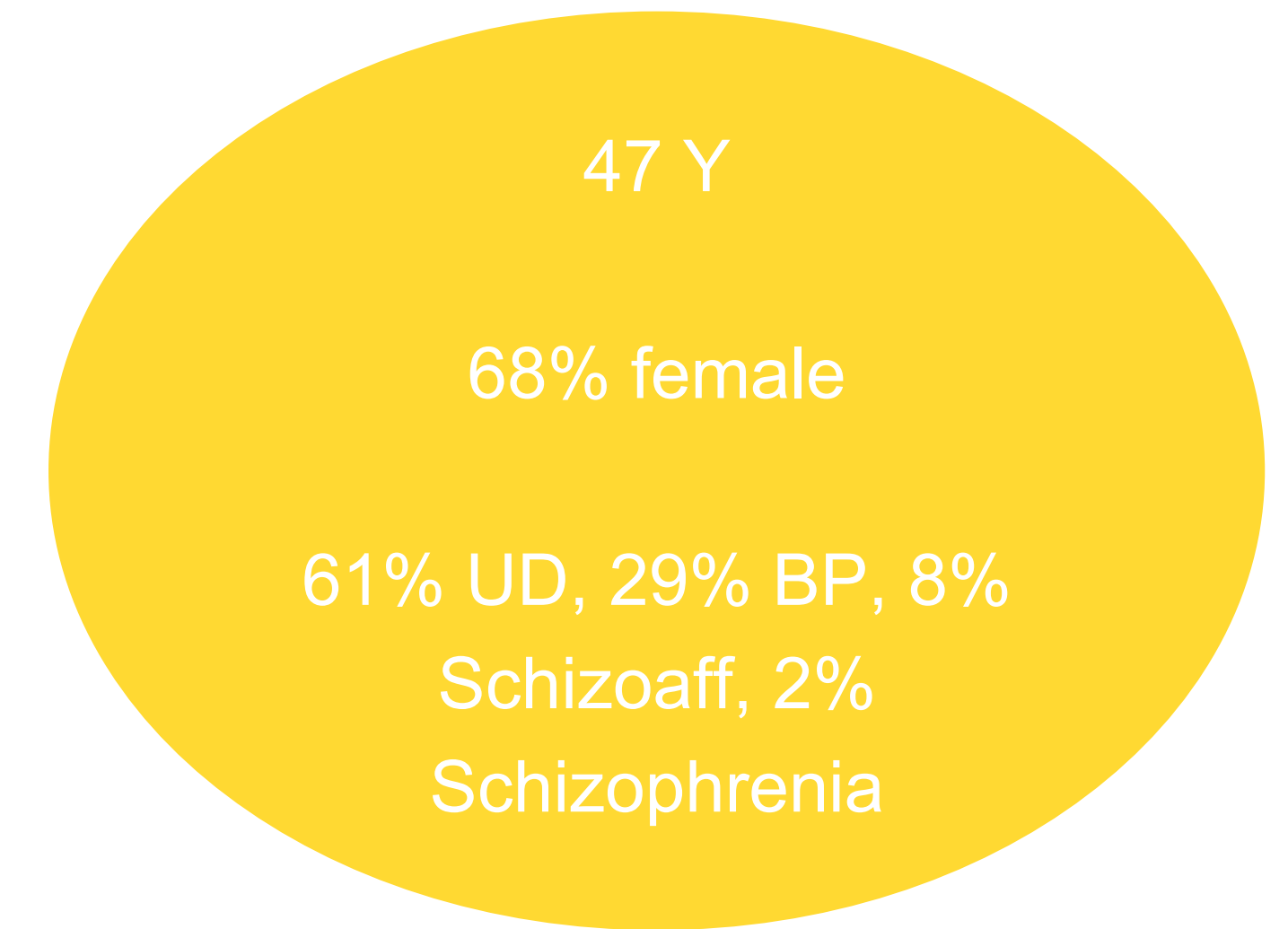
56 Y (SD=16)
72% female
83% UD, 17% BP
15.3 ECT sessions
(SD=23)

- N=119 (depressive episode)
- 10 years of follow-up
- Cognitive testing: pre-ECT, 1w and 3m post-ECT, yearly during M-ECT
- ***“Repeated courses of ECT do not lead to cumulative cognitive deficits.”***

During M-ECT?

Luccarelli et al. (2020)

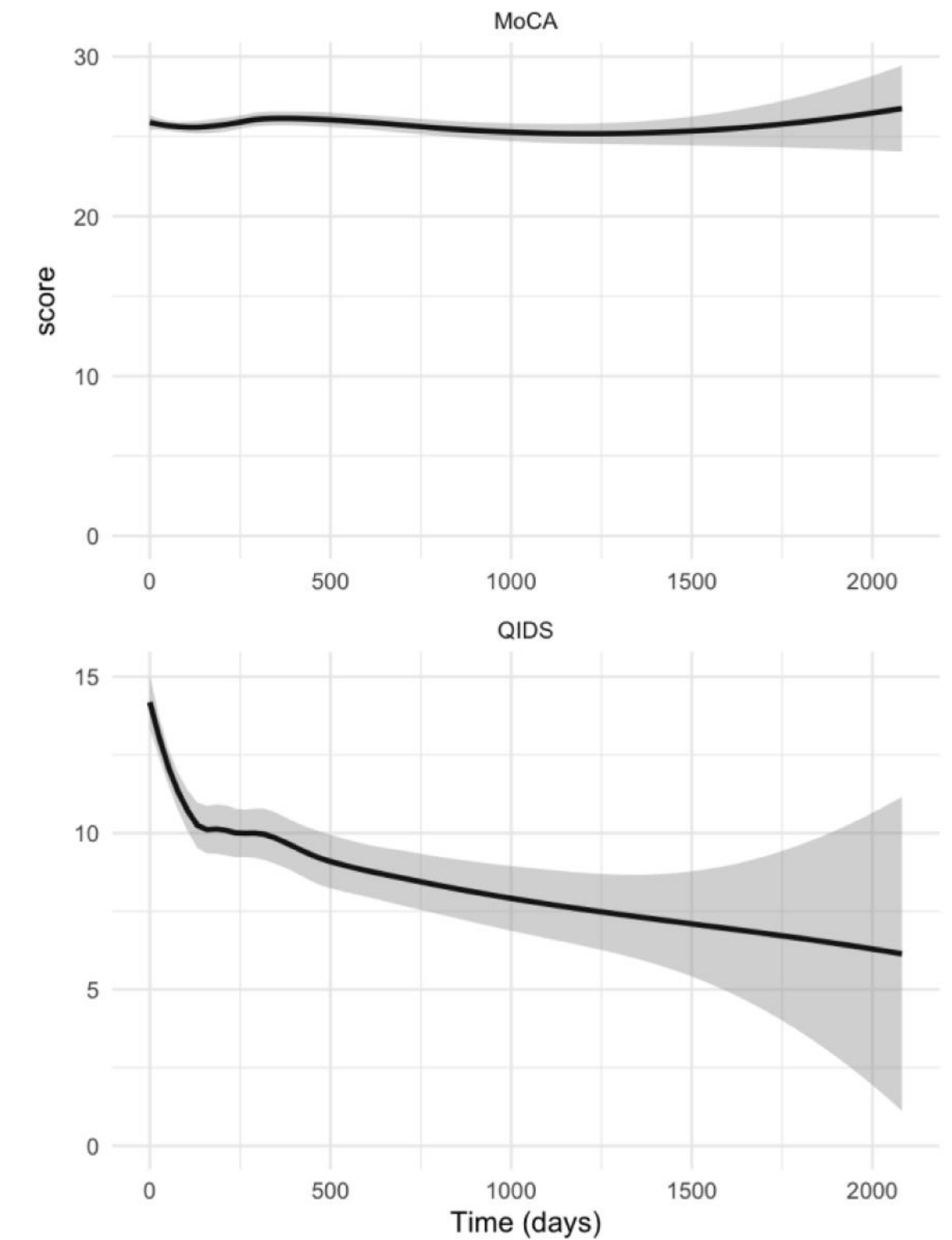
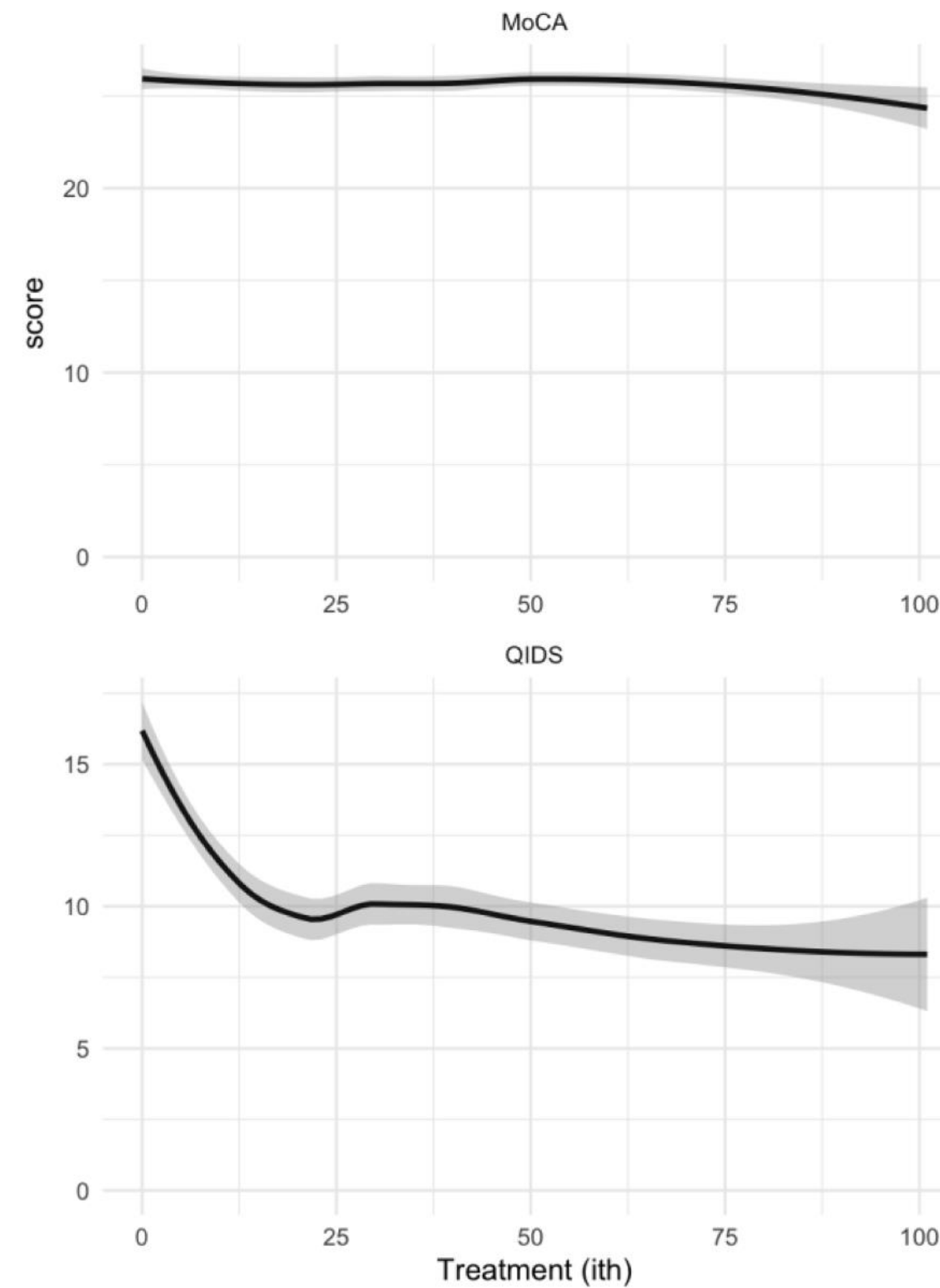
- Retrospective cohort study
- N=100
- at least 50 treatments as part of a single treatment course
- QIDS & MoCA: baseline, every 10 treatments



During M-ECT?

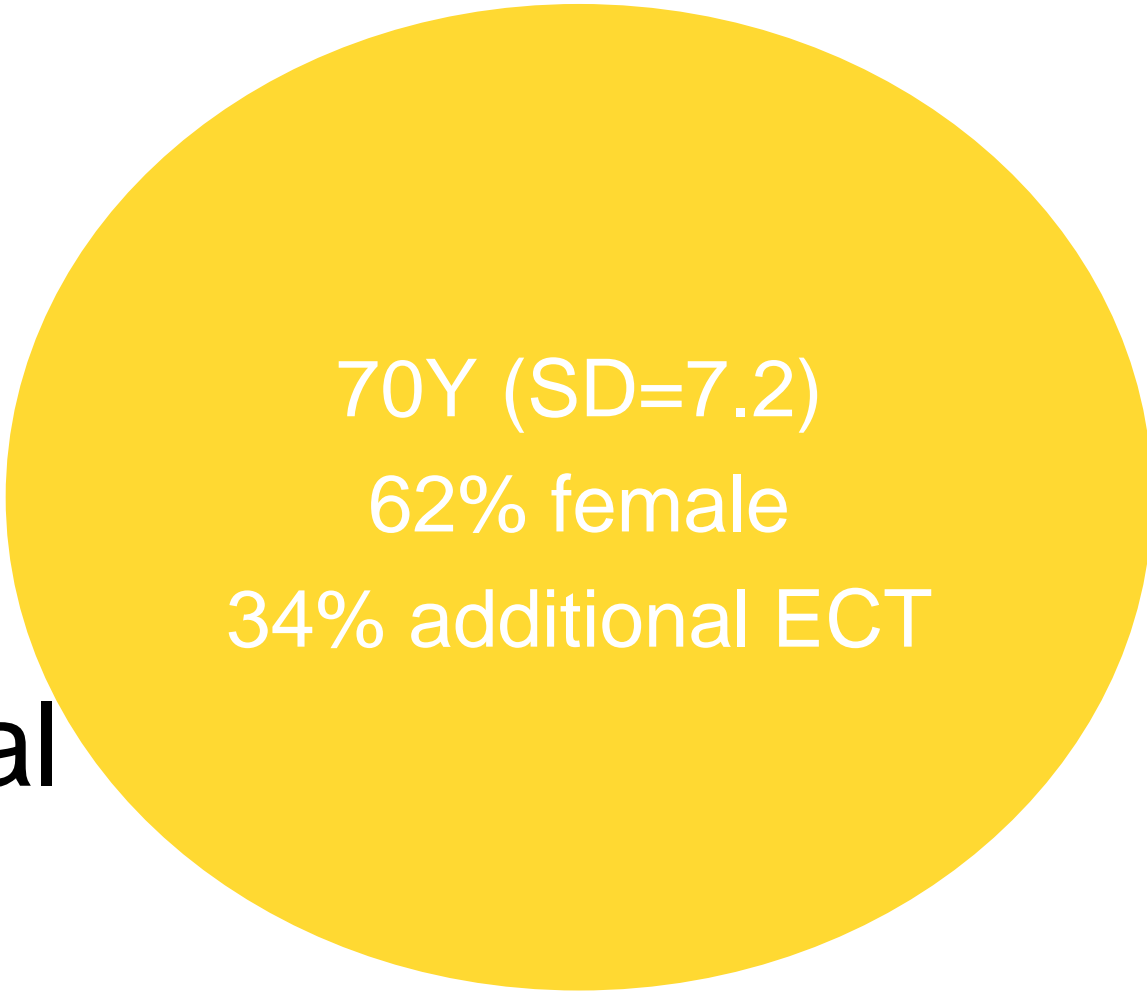
Lucarelli et al. (2020)

“Improvement in depression was sustained and adverse cognitive effects were not detected, supporting the utility of maintenance ECT.”



During M-ECT?

Lisanby et al. (2022)



70Y (SD=7.2)
62% female
34% additional ECT

- PRIDE Study (Phase 2): multicenter, randomised trial
- 6 M follow-up after remission: STABLE ECT + pharmacotherapy vs. only pharmacotherapy
- N=120 (60Y and older, unipolar major depressive episode)
- Extensive cognitive testing: baseline, 6M follow-up

During M-ECT?

Lisanby et al. (2022)

“Our key finding is that neurocognitive function improved over the 6M follow-up period. Regardless of which prolonging remission strategy was used, patients demonstrated recovery of the mild-to moderate neurocognitive impairments they experienced after the acute course of RUL-UB ECT + VLF. For the group as a whole, performance on most neurocognitive measures returned to the average range.”

During M-ECT?

Obbels et al. (2018), Obbels et al. (2020)

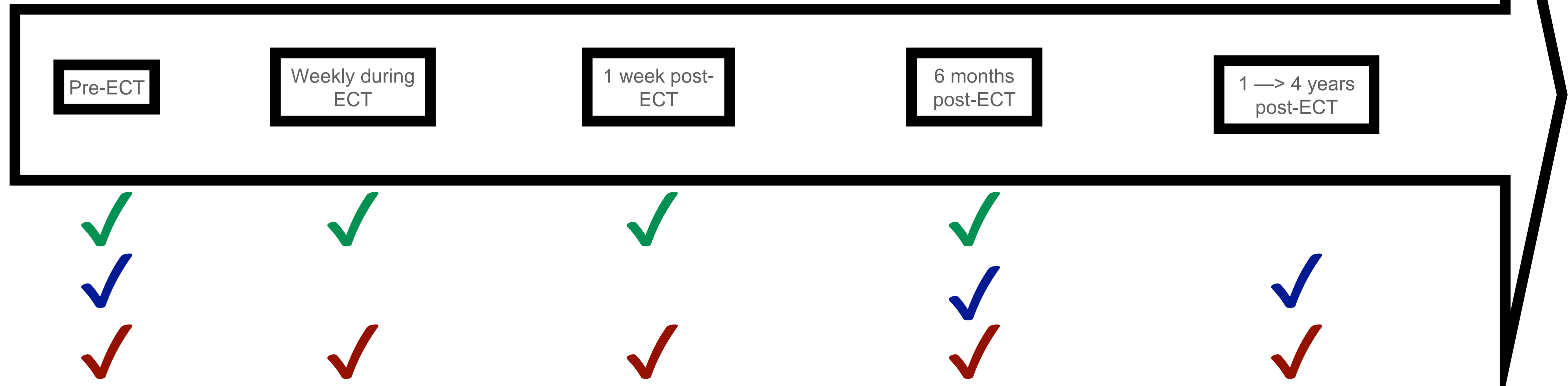
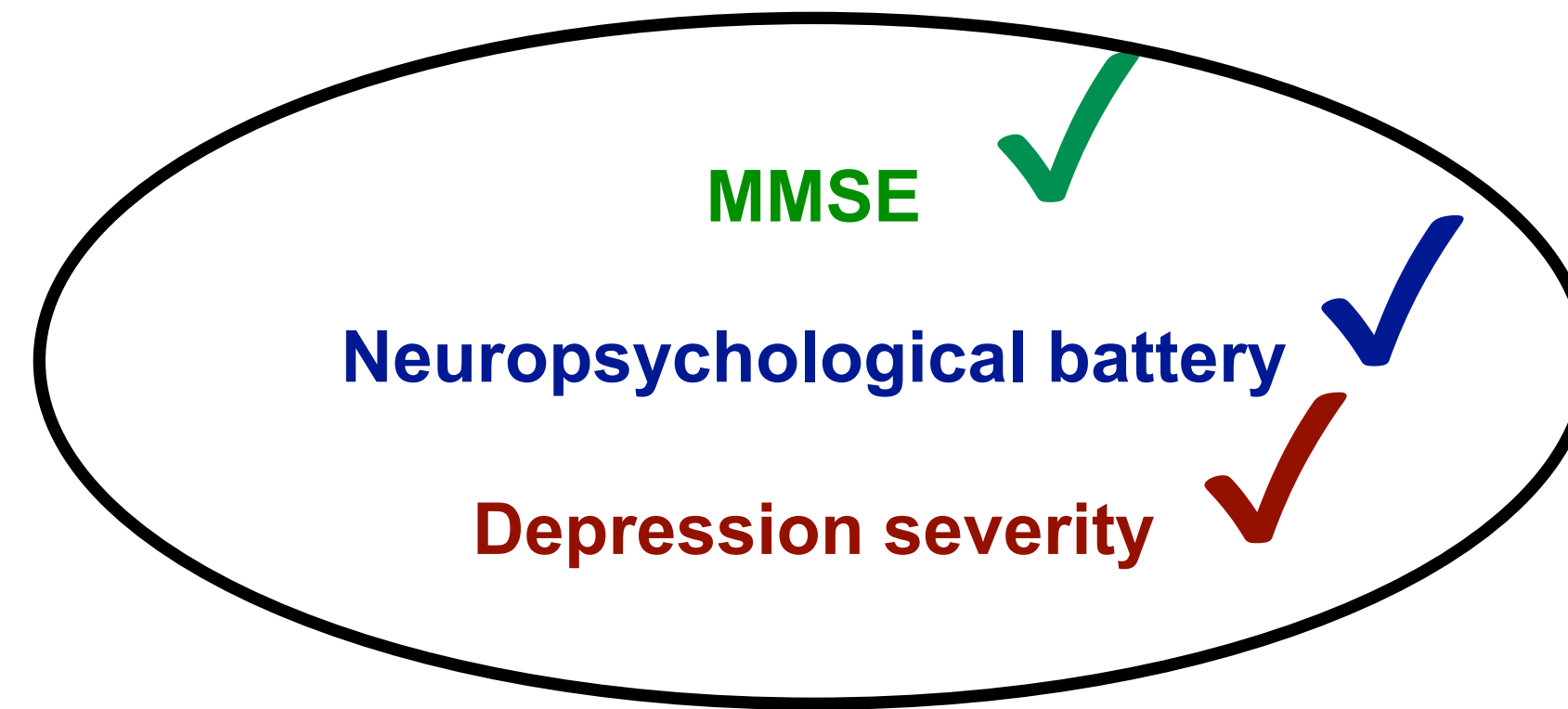
- **MODECT** (Mood Disorders in Elderly treated with ECT Study): UPC KU Leuven + GGZinGeest Amsterdam
- N = 110, $\geq 55Y$
- Unipolar depression
- ECT: twice a week RUL
- Stop ECT: Remission

Obbels J, Verwijk E, Vansteelandt K, et al. (2018). Long-term neurocognitive functioning after electroconvulsive therapy in patients with late life depression. *Acta Psychiatrica Scandinavica*, 138, 223-231.

Obbels J, Vansteelandt K, Bouckaert F, et al.(2020). Neurocognitive functioning after electroconvulsive therapy in late-life depression: a four-year prospective study. *Acta Psychiatrica Scandinavica*, 143, 141-150.

During M-ECT?

Obbels et al. (2018), Obbels et al. (2020)

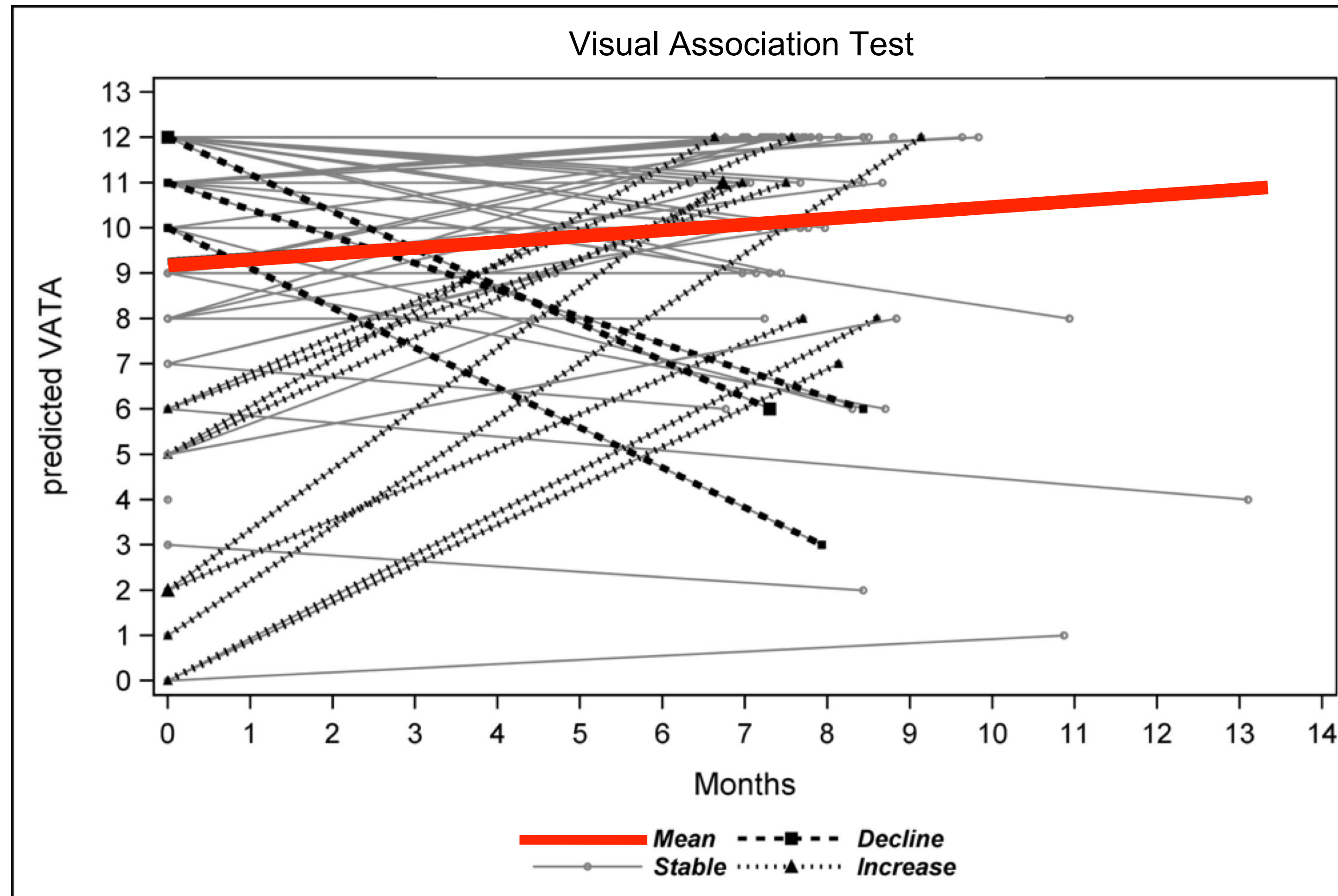


During M-ECT?

Obbels et al. (2018), Obbels et al. (2020)

N = 110

73Y
66% female



During M-ECT?

Obbels et al. (2018), Obbels et al. (2020)

- NO correlation between **number of ECT sessions** and cognitive performance
- ***“M-ECT/higher number of ECT-sessions does not cause additional negative effects on cognition!”***

Clinical message

“Maintenance ECT is effective in prolonging remission without resulting in additional adverse cognitive effects.”

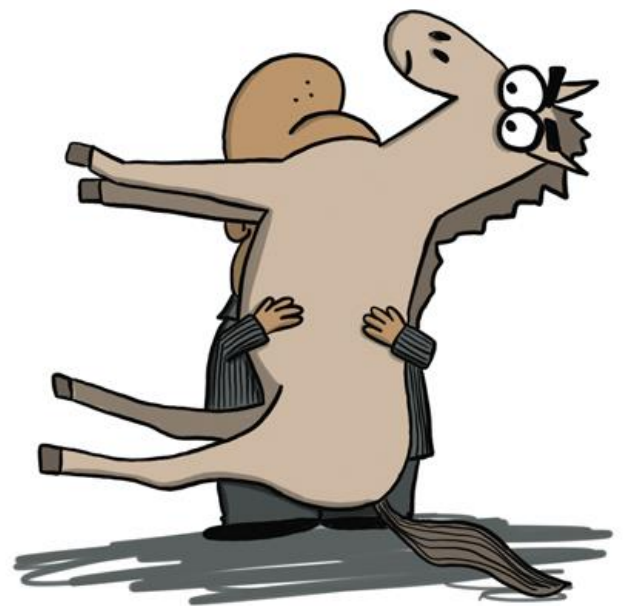


Clinical message

Caution!

- Autobiographical memory
- Normative data from healthy control group
- Individual differences
- Subjective experience

Hold Your Horses!



Clinical message

Autobiographical memory

- More research needed



Clinical message

Normative data

- Normative data: Comparing with non-depressed group:
poor performance
- “Scare hypothesis” (Lewinsohn)
= each depressive episode might leave a cognitive scare whereby each episode increases the likelihood of developing cognitive problems and relapse

Clinical message

Individual differences



GROUP level

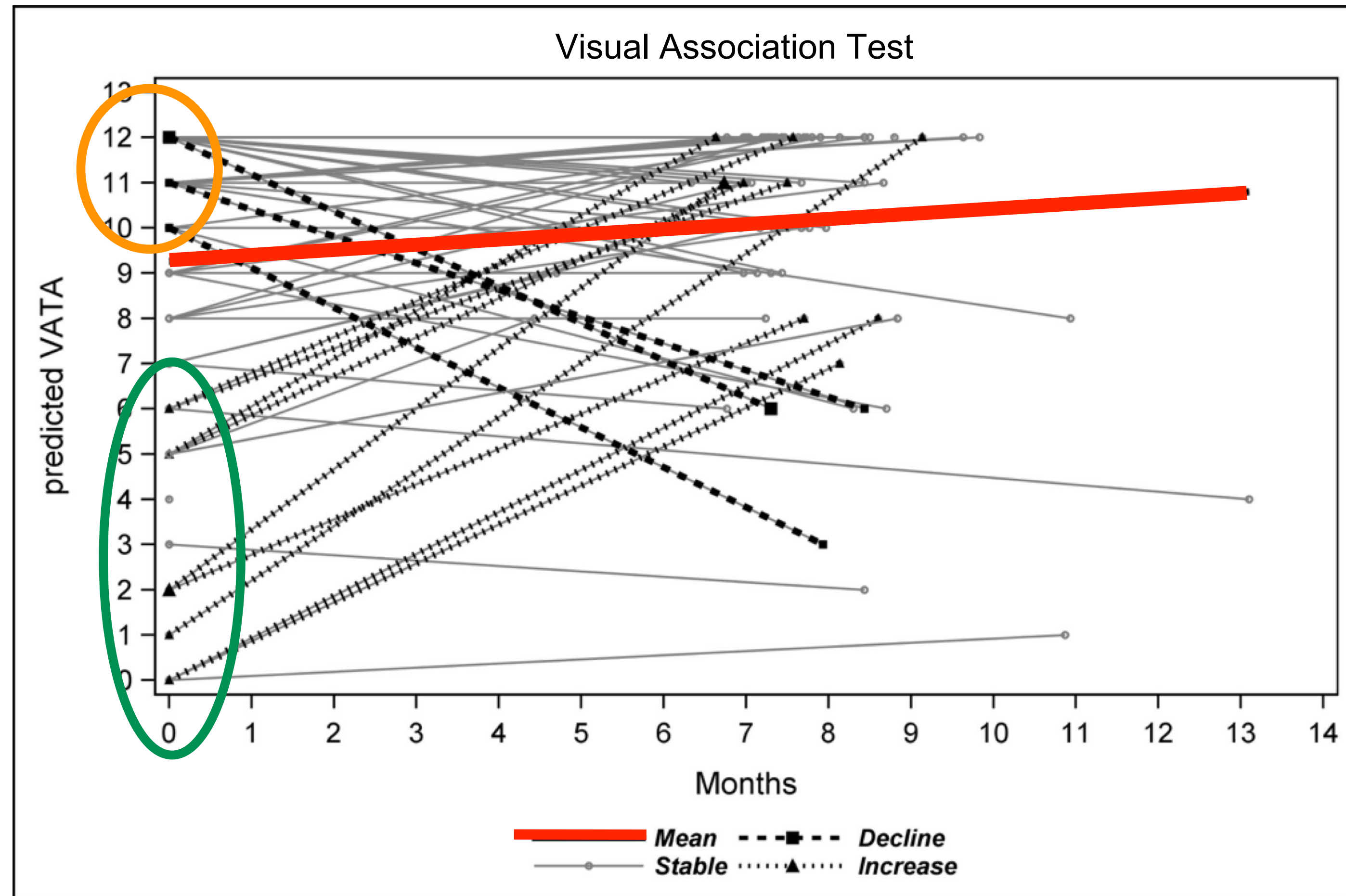
VS



INDIVIDUAL level

Individual differences in cognitive performance on Visual Association Test

Baseline - 6 months after ECT



Obbels J, Verwijk E, Vansteelandt K, et al. (2018). Long-term neurocognitive functioning after electroconvulsive therapy in patients with late life depression. *Acta Psychiatrica Scandinavica*, 138, 223-231.

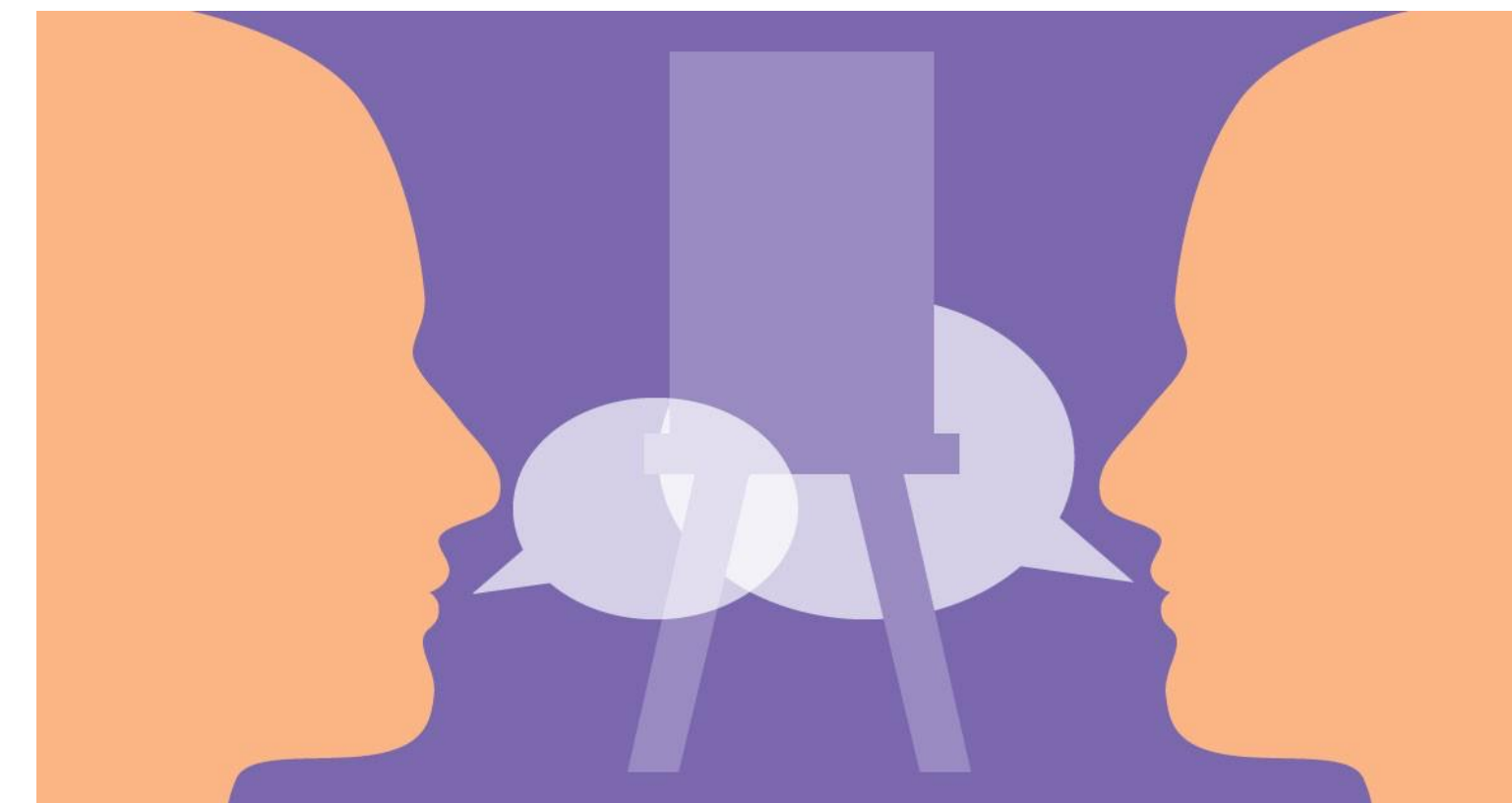
Obbels J, Vansteelandt K, Bouckaert F, et al. (2020). Neurocognitive functioning after electroconvulsive therapy in late-life depression: a four-year prospective study. *Acta Psychiatrica Scandinavica*, 143, 141-150.

	Declined Frequency	Neutral Frequency	Improved Frequency
VAT A	3	56	9
TMT A	3	56	2
TMT B	3	28	0
Semantic fluency	0	66	4
Clock	13	45	7
Meander Luria	15	38	14

Clinical message

Subjective experience

- Objective vs. subjective cognitive complaints
- Systematic review & meta-analysis (Semkovska et al., 2022):
 - > 48% reported subjective complaints
 - > improvement depressive symptoms: strongest predictor
- During M-ECT?



Clinical message

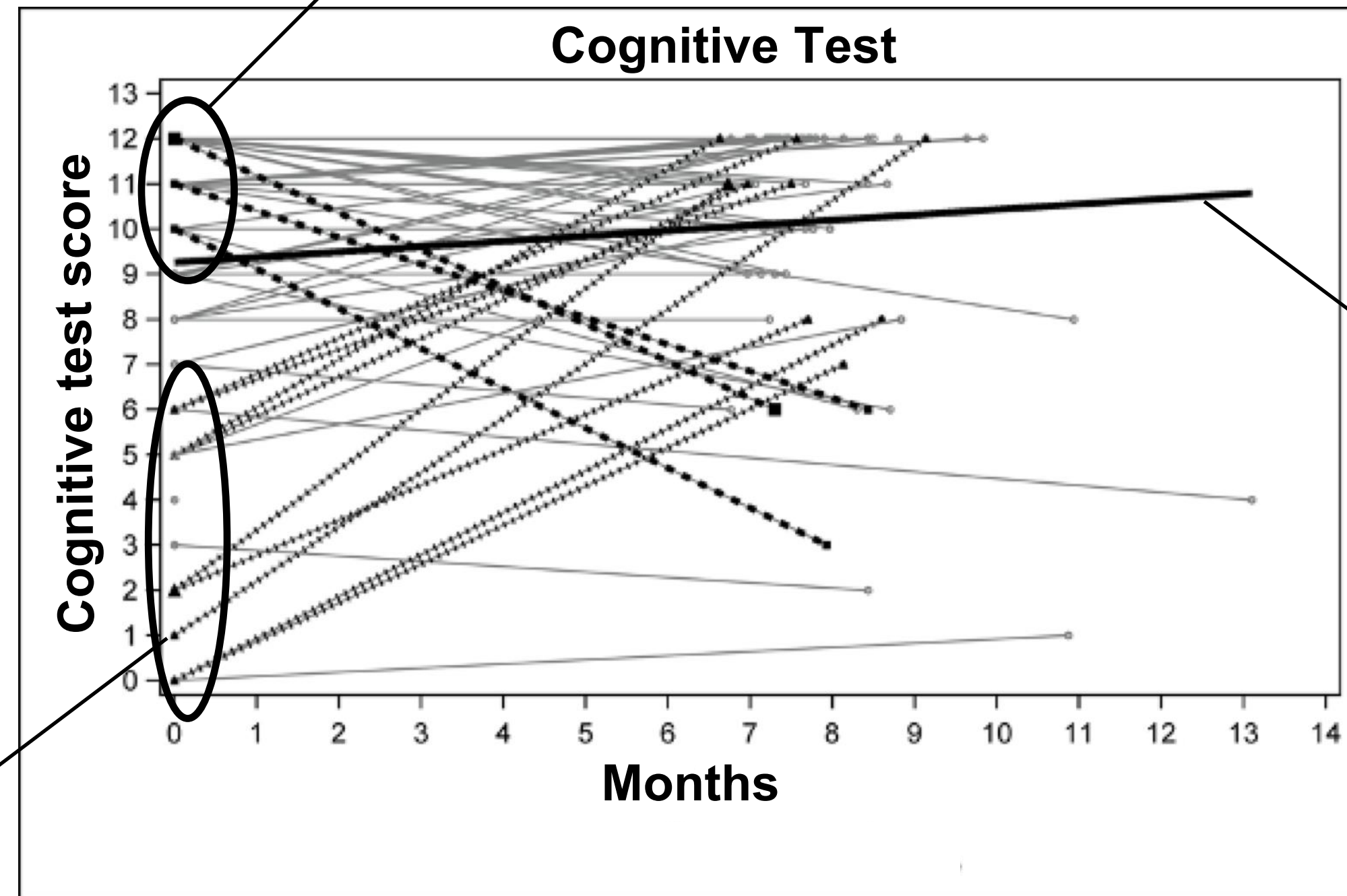
- Group/subgroup
- Impact depression
- Subjective experience



PERSONALIZING ECT-talk

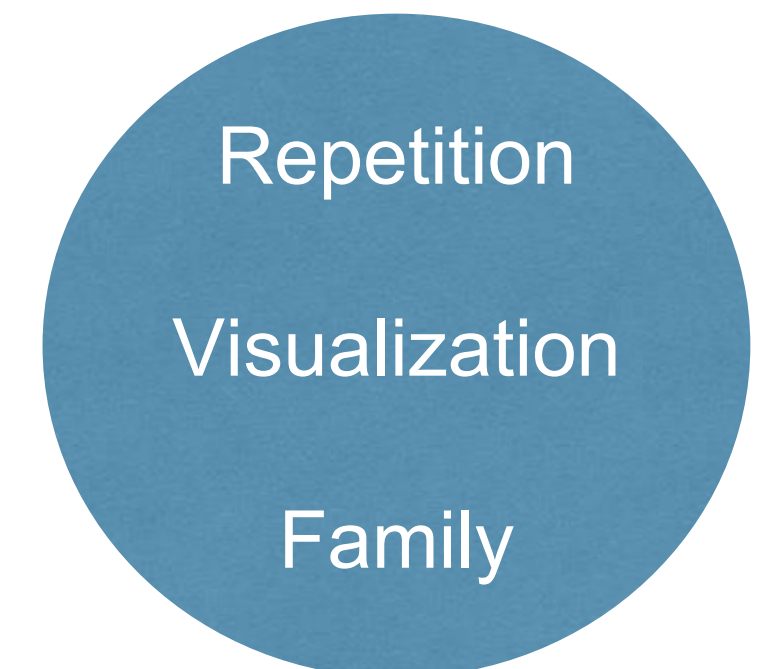


Three patients show a cognitive decline.



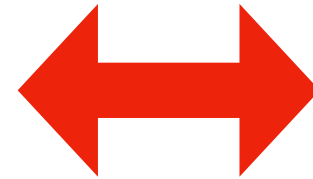
Most patients show a stable cognitive trajectory.

Nine patients show a cognitive improvement.



Part 2: ECT-related anxiety

“the most distressing psychological complication of ECT” (Ayd, 1956)

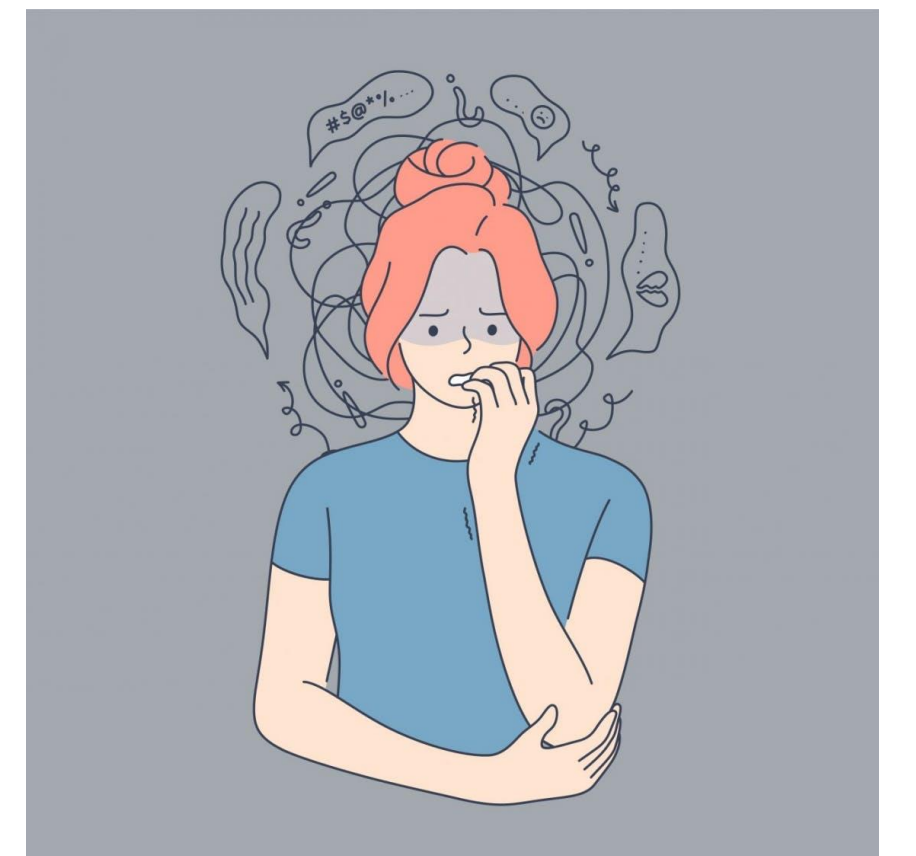


hardly studied

low methodological quality

highly prevalent (14-75%)

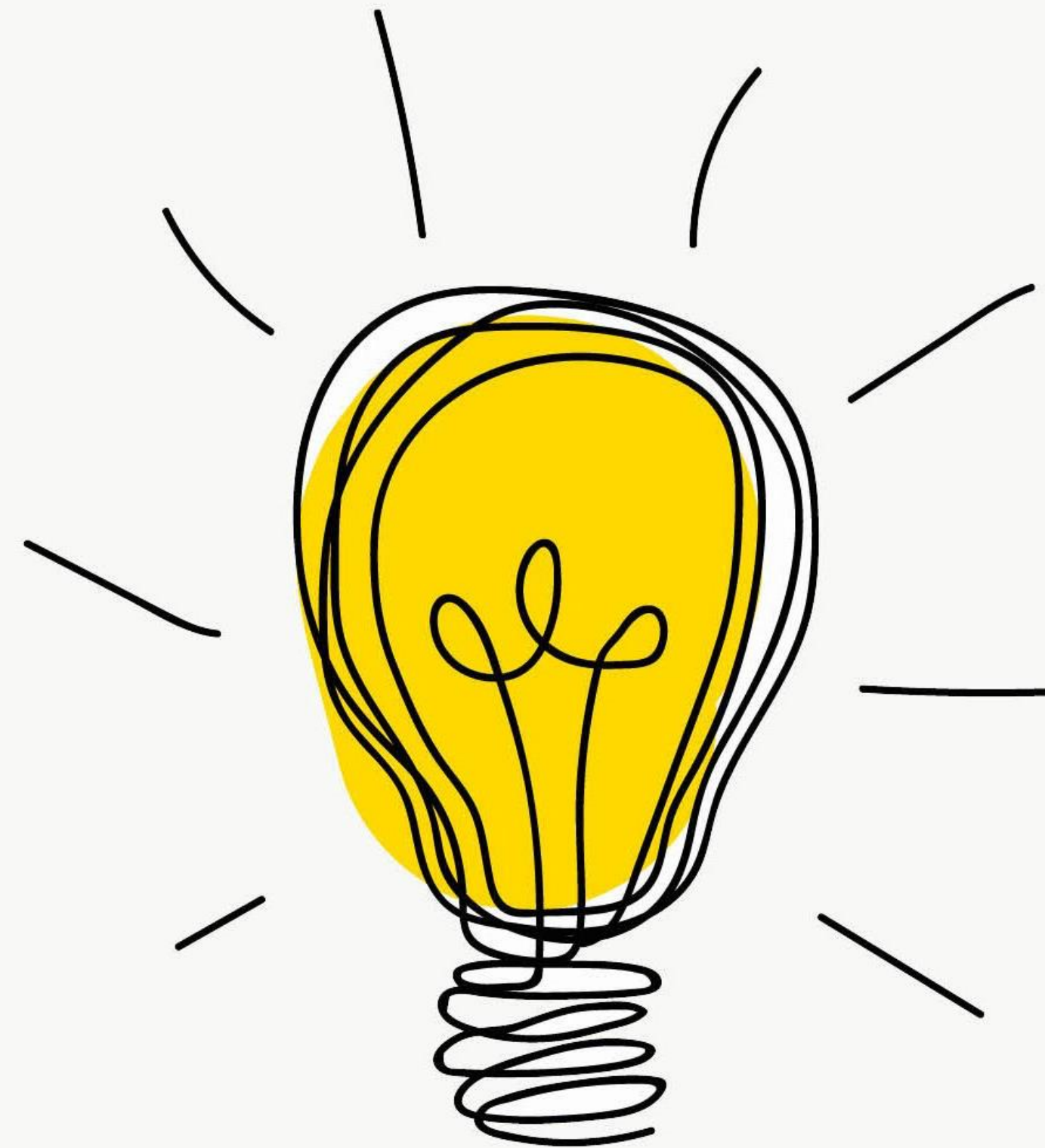
NO data about ECT-related anxiety trajectories during M-ECT



Prospective study: *Research*

questions

- How do ERA trajectories develop during M-ECT (and differ from acute course?)
- How do ERA trajectories relate to depression severity trajectories during M-ECT?
- Which clinical and demographic characteristics are related to the course of ERA during M-ECT?



IDEA

Methods

Participants

- in-and outpatients of UPC KU Leuven (Belgium)
- $\geq 18Y$
- Dutch-speaking
- referred for ECT for unipolar or bipolar major depressive episode
- received M-ECT after their acute ECT course
- written informed consent

Methods

Assessment

- Quick Inventory of Depressive Symptomatology -Clinician Rated (QIDS): **depressive symptom severity**
- ECT-related anxiety Questionnaire (ERAQ): **severity of ECT-related anxiety**



**Before each acute ECT
& M-ECT session**

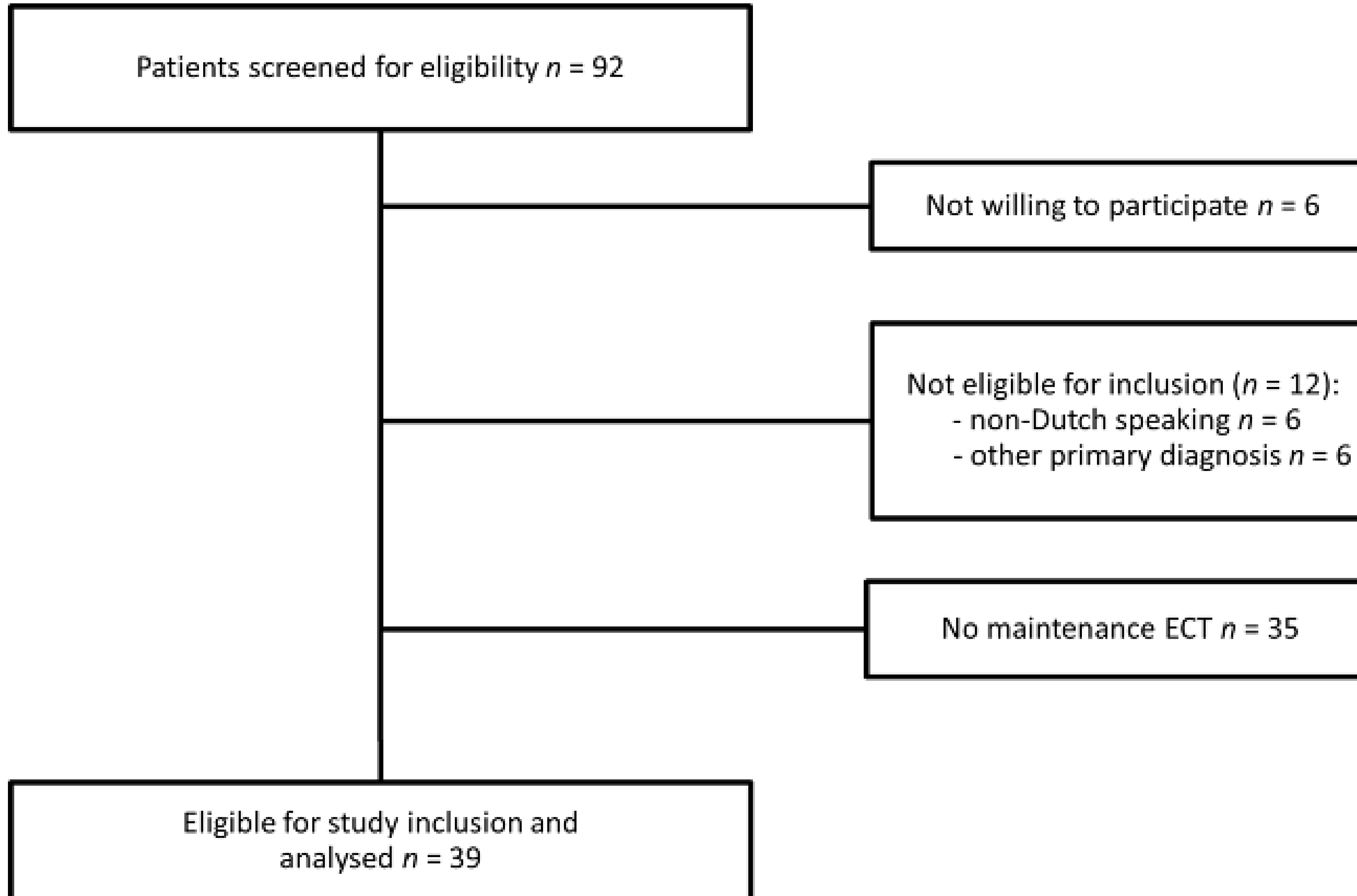
Methods

ERAQ

- Dutch
- 17-items
- self-report
- 4 point-scale

		never	a little	some	Quite a lot/very
1	I am anxious about temporary memory loss due to ECT.	1	2	3	4
2	I am anxious about permanent memory loss due to ECT.	1	2	3	4
3	I am anxious about brain damage due to ECT.	1	2	3	4
4	I am anxious about personality changes due to ECT.	1	2	3	4
5	I am anxious about having a headache after the ECT treatment.	1	2	3	4
6	I am anxious about feeling nauseous after the ECT.	1	2	3	4
7	I am anxious about damage to my teeth due to ECT.	1	2	3	4
8	I am anxious about the narcosis (complete anesthesia).	1	2	3	4
9	I am anxious about the needle that is used during anesthesia.	1	2	3	4
10	I am anxious about being surrendered to the medical staff during anesthesia.	1	2	3	4
11	I am anxious about doing embarrassing things during anesthesia.	1	2	3	4
12	I am anxious about not waking up after the anesthesia.	1	2	3	4
13	I am anxious about dying due to ECT.	1	2	3	4
14	I am anxious about the use of electricity during the ECT procedure.	1	2	3	4
15	I am anxious about the convulsion during the ECT procedure.	1	2	3	4
16	I am anxious to have to wait a long time for my treatment on the morning of the ECT treatment.	1	2	3	4
17	I am anxious about what others would think of my treatment.	1	2	3	4

Results



Results

Mean age, year (SD, min-max)	49.82 (11.82, 21-74)
Gender, female, <i>n</i> (%)	26 (66.67)
DSM-IV diagnosis, <i>n</i> (%)	
Unipolar depression	31 (79.49)
With psychotic features	14 (35.90)
Without psychotic features	17 (43.59)
Bipolar depression	8 (20.51)
With psychotic features	2 (5.13)
Without psychotic features	6 (15.38)
Mean number of ECT sessions during acute course (SD, min-max)	11.90 (5.39, 3-29)
Mean number of ECT sessions during acute course and M-ECT (SD, min-max)	17.87 (7.91, 6-34)

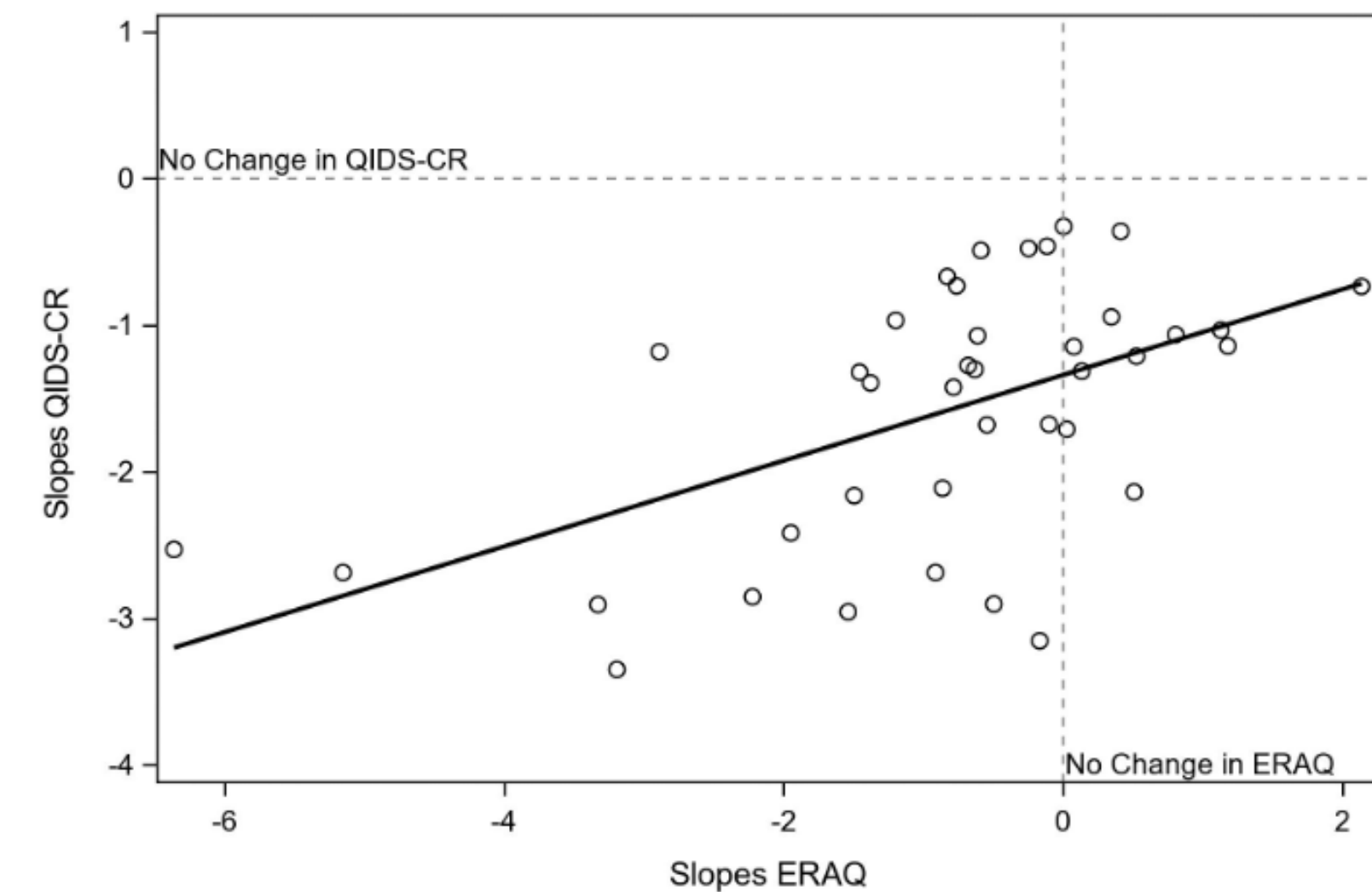
Results

- **Acute course:** ERA and depression severity declined significantly
- **M-ECT:** ERA and depression severity remained stable

Results

Correlation between QIDS & ERAQ

- **During acute course:** larger decline in depression severity was associated with a larger decline in ERA
- **During M-ECT:** no association between ERA and depression severity



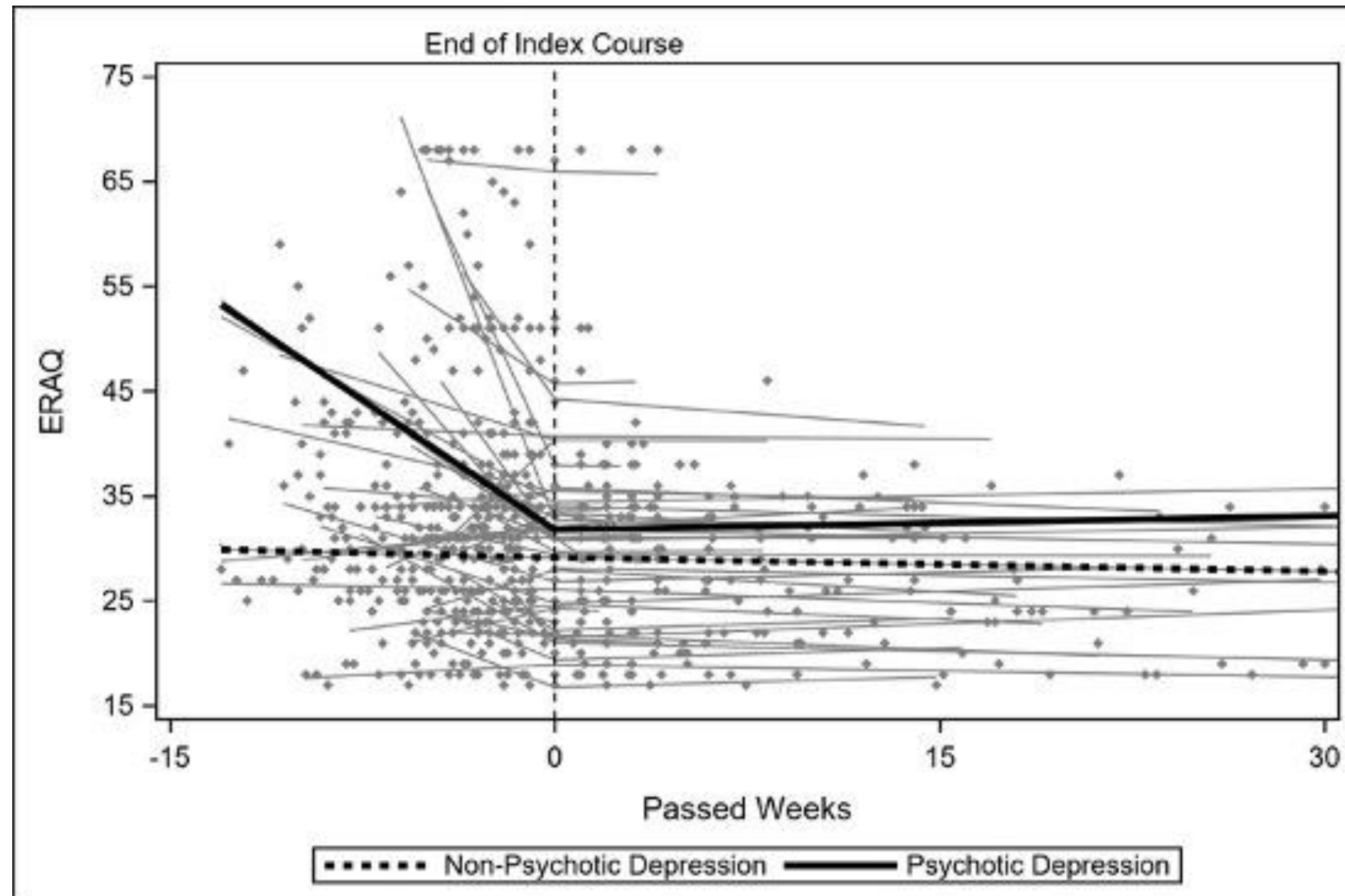
Results

Covariates

- No effect of age, gender, number of ECT session during acute course, total number of ECT sessions during acute and M-ECT
- Psychotic features

Results

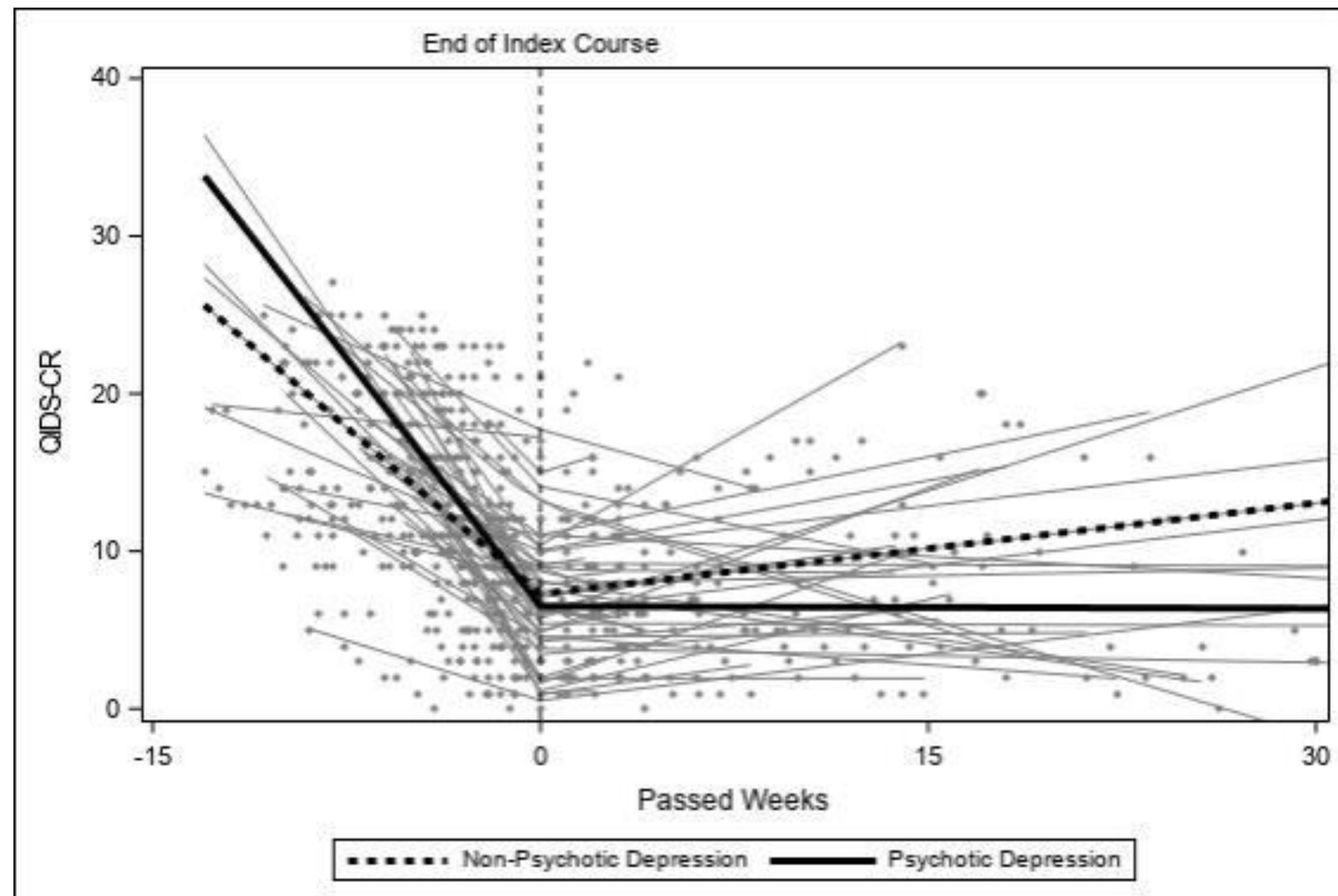
Psychotic features



- **Psychotic depression:**
 - more ERA before start ECT
 - significant decline during acute course
 - evening out into a plateau during M-ECT
- **Non-psychotic depression:**
 - less ERA before start ECT
 - stable ERA during acute and M-ECT

Results

Psychotic features

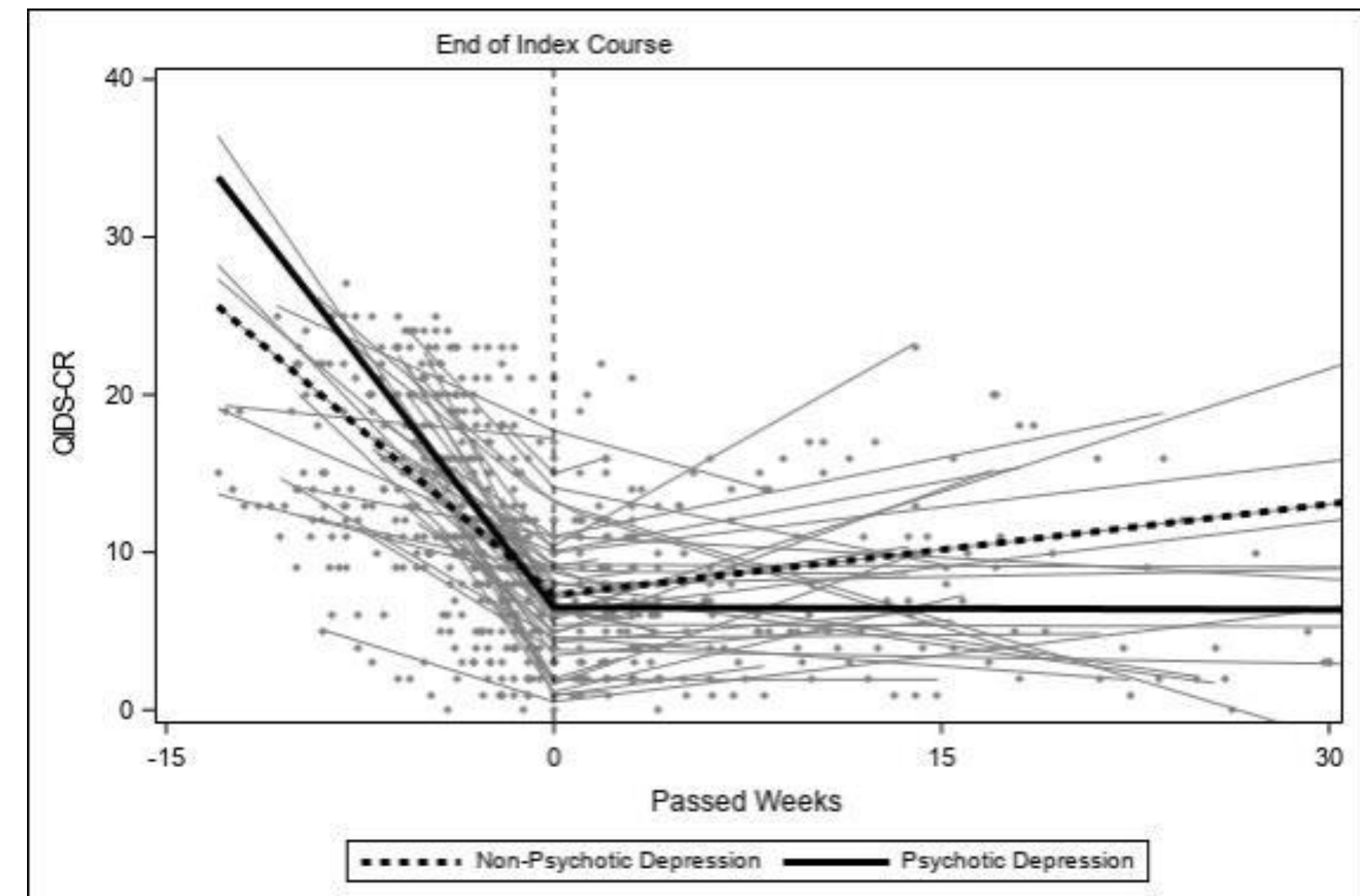
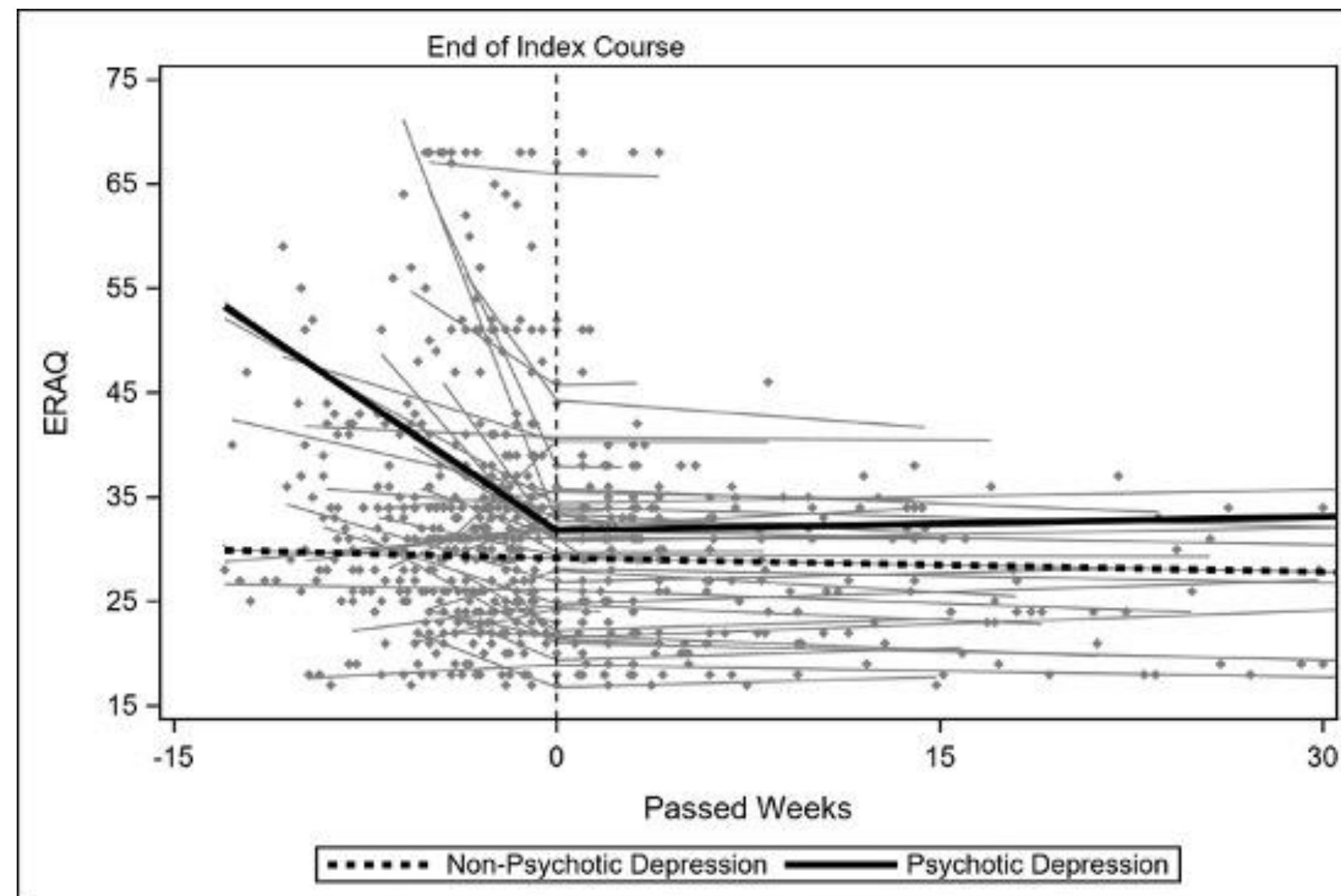


- **Psychotic depression:**
 - more severely depressed before start ECT
 - significant decline during acute course
 - stable during M-ECT
- **Non-psychotic depression:**
 - less severely depressed before start ECT
 - significant but smaller decline during acute course
 - stable during M-ECT

Results

Psychotic features

- changes in ERAQ: related to an improvement of depression severity or the disappearance of psychotic symptoms?



Clinical message

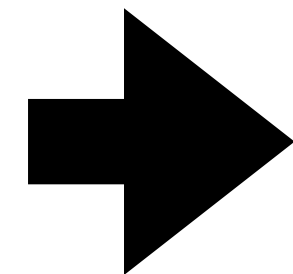
Number of ECT sessions

- No association between ERA trajectories and total number of ECT sessions
- Despite large total number of ECT sessions during M-ECT: no panic mode, not becoming more anxious over time!

Clinical message

Changing old ideas

“Cognitive side-effects and ECT-related anxiety will not escalate during M-ECT!”



Maintenance ECT is a valid treatment option!

Family-centered ECT-care

Coffey & Coffey (2019)



Thanks to...



**Academic Centre for ECT and
Neuromodulation (AcCENT)**



**ResPECT - Research in Psychiatry &
ECT
Flemish-Dutch ECT consortium**



**ECT team
UPC KU Leuven**