

Depression

(for non-clinicians)

Computational Psychiatry Course 2020
Gina Paolini

07.09.2020



COVID-19 and Depression

Aug. 18

BUSINESS

UK Rates of Depression Double Among Adults During Lockdown

Rates of depression appear to have almost doubled in Britain since the country was put into lockdown in late March as a result of the coronavirus pandemic, according to the country's official statistics agency.

By The Associated Press

Prevalence of depressive symptoms in June
2020: 19.7%
2019: 9.7%

Aug. 21

SUNDAY REVIEW

Is the Lockdown Making You Depressed, or Are You Just Bored?

We shouldn't pathologize normal unpleasant emotions — which doesn't mean we shouldn't do something about them.

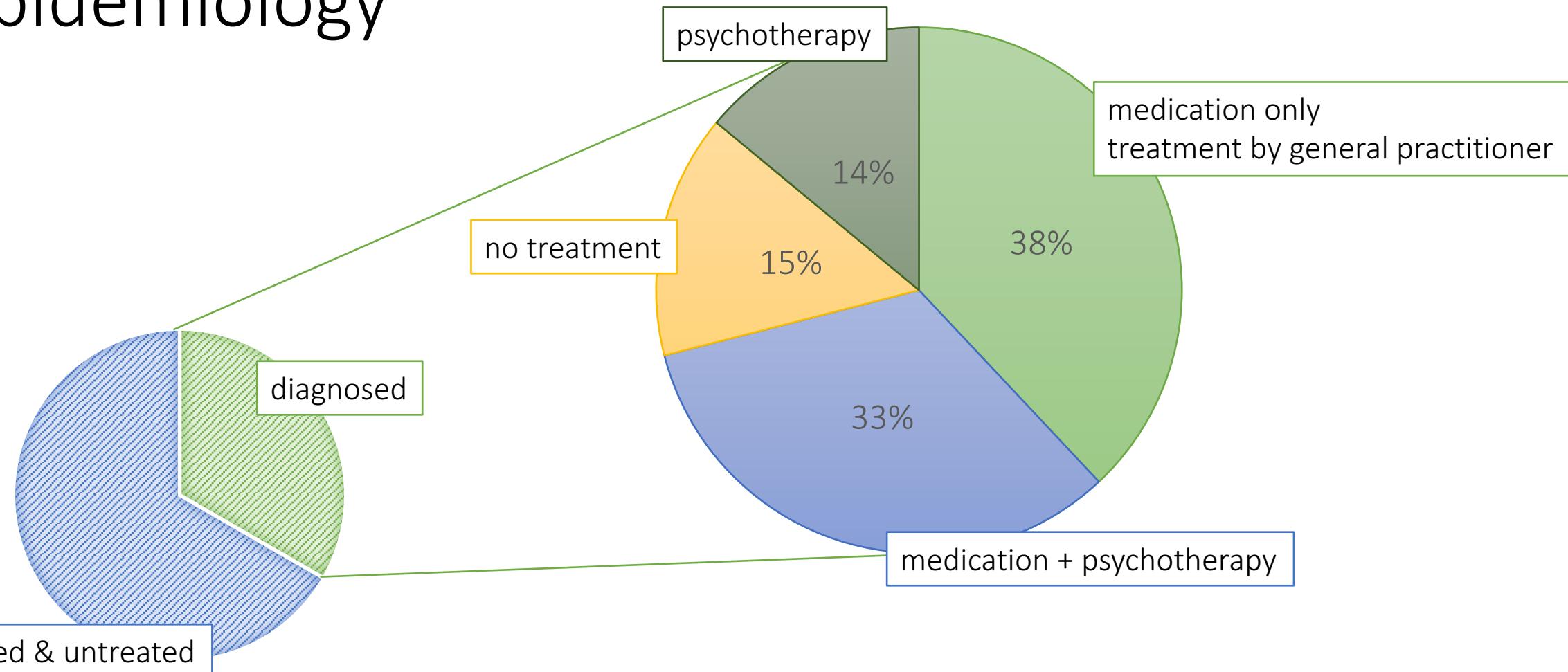
By Richard A. Friedman

Pathology or normal reaction to adverse events?

Epidemiology

- Lifetime prevalence 20% (♂ 12.3% ♀ 25%)
- Age at onset: 25-35 years
- Suicidality
- Heritability: ~35%
- Risk factors: low socio-economic status, urban (vs. countryside), adverse life events (early/chronic), comorbidities
- Comorbidities of MDD
 - anxiety disorders (20-30%)
 - substance abuse (~20%)
 - personality disorders (up to 50%)

Epidemiology



Case example

- Vincent, 40y., computer scientist
- feels exhausted and burned out
- feels physically unfit
- feels incompetent
- ruminating about mistakes he has done at work
- drinks alcohol to fall asleep
- suffers from loneliness, stopped with free time activities

Low mood

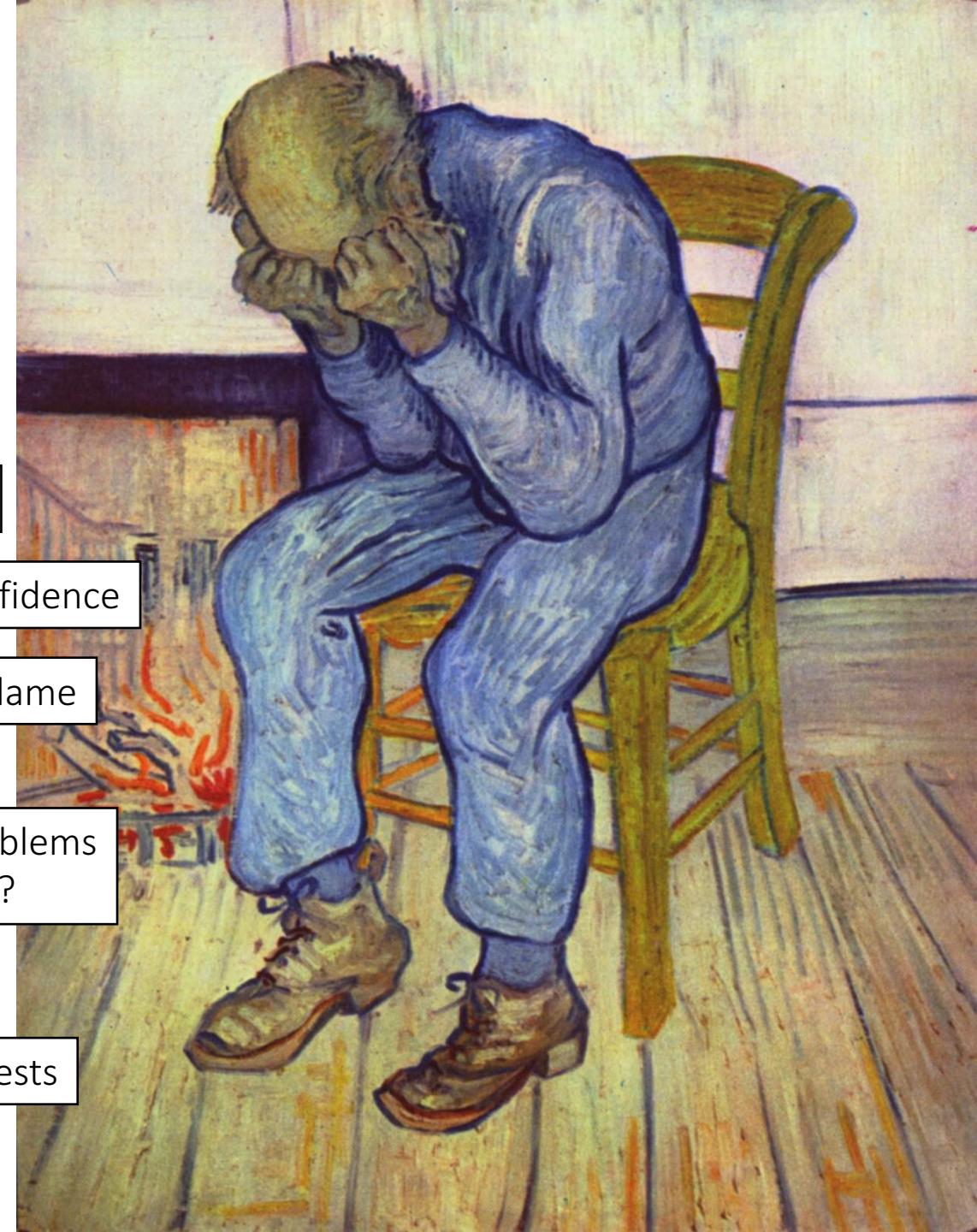
Low energy

Low self-confidence

Guilt / self-blame

Sleeping problems
Comorbidity?

Loss of interests



ICD-10 Diagnosis

Key symptoms	Additional symptoms	Diagnosis
Persistent sadness or low mood	Low self-confidence	F32.- depressive episode
Loss of interests or pleasure	Guilt or self-blame	F32.0 mild
Fatigue or low energy	Suicidal thoughts or acts	F32.1 moderate
	Poor concentration or indecisiveness	F32.2 severe without psychotic
	Agitation or slowing of movements	F32.3 severe with psychotic
	Disturbed sleep	F33.- recurrent depressive disorder
	Poor or increased appetite	F32.0 mild
		F32.1 moderate
		F32.2 severe without psychotic
		F32.3 severe with psychotic
		F33.4 currently in remission

ICD-10 Diagnosis



Key symptoms

Persistent sadness or low mood

Loss of interests or pleasure

Fatigue or low energy

Additional symptoms

Low self-confidence

Guilt or self-blame

Suicidal thoughts or acts

Poor concentration or indecisiveness

Agitation or slowing of movements

Disturbed sleep

Poor or increased appetite

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Min. 2 key criteria, in total at least 6

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Fatigue or low energy

Additional symptoms

Low self-confidence

Guilt or self-blame

Suicidal thoughts or acts

Poor concentration or indecisiveness

Agitation or slowing of movements

Disturbed sleep

Poor or increased appetite

Min. 2 key criteria, in total at least 4

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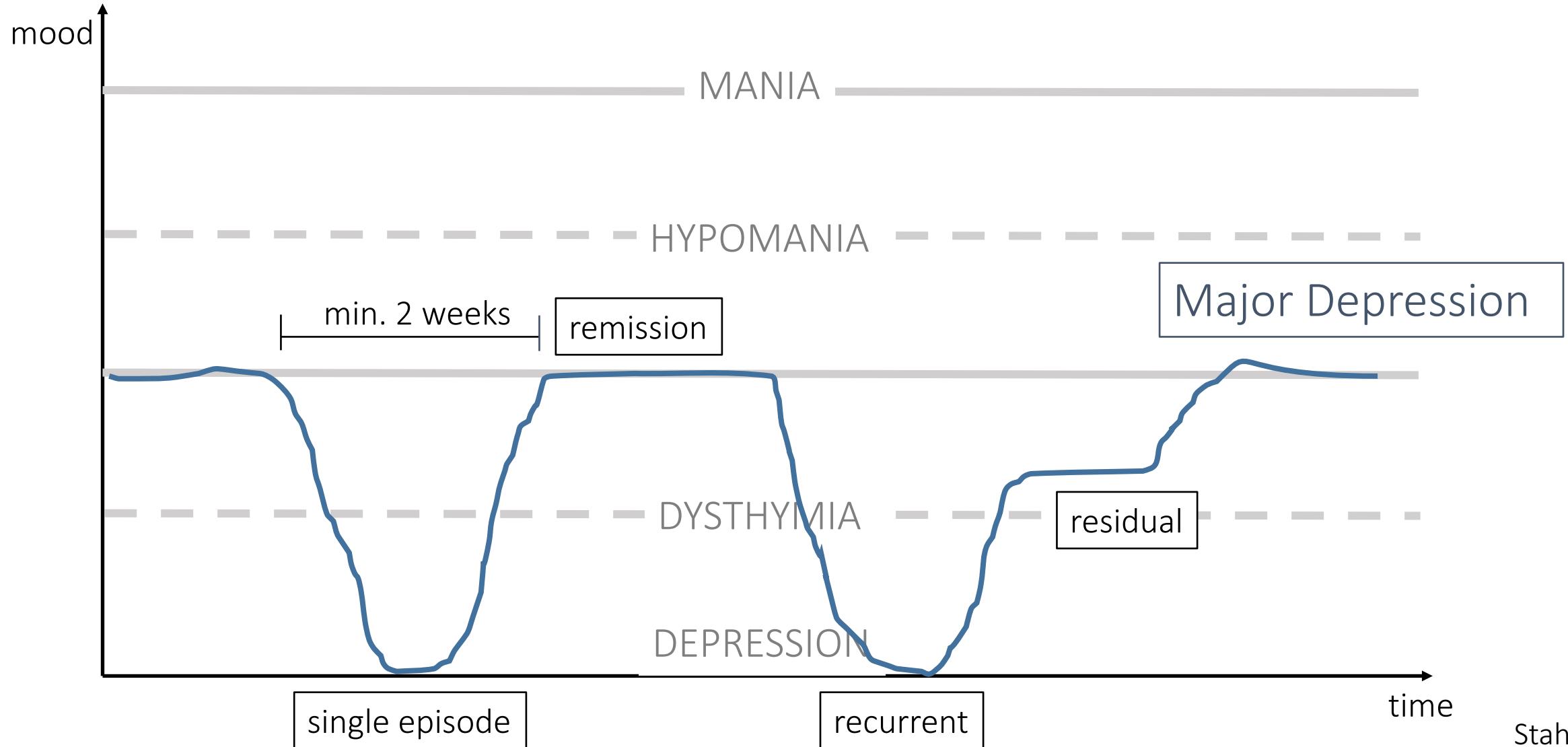
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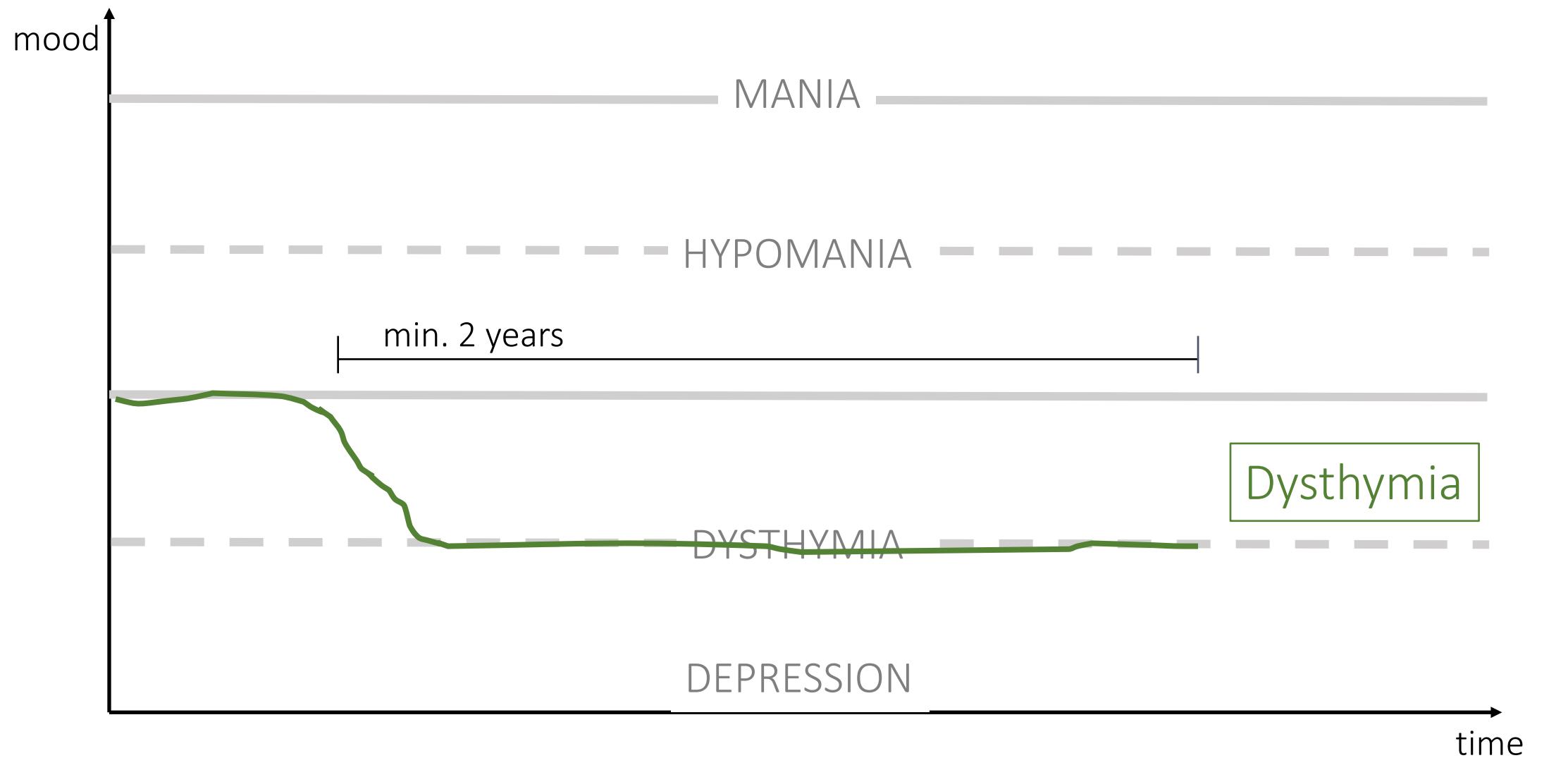
F33.4 currently in remission

All key criteria, in total at least 8

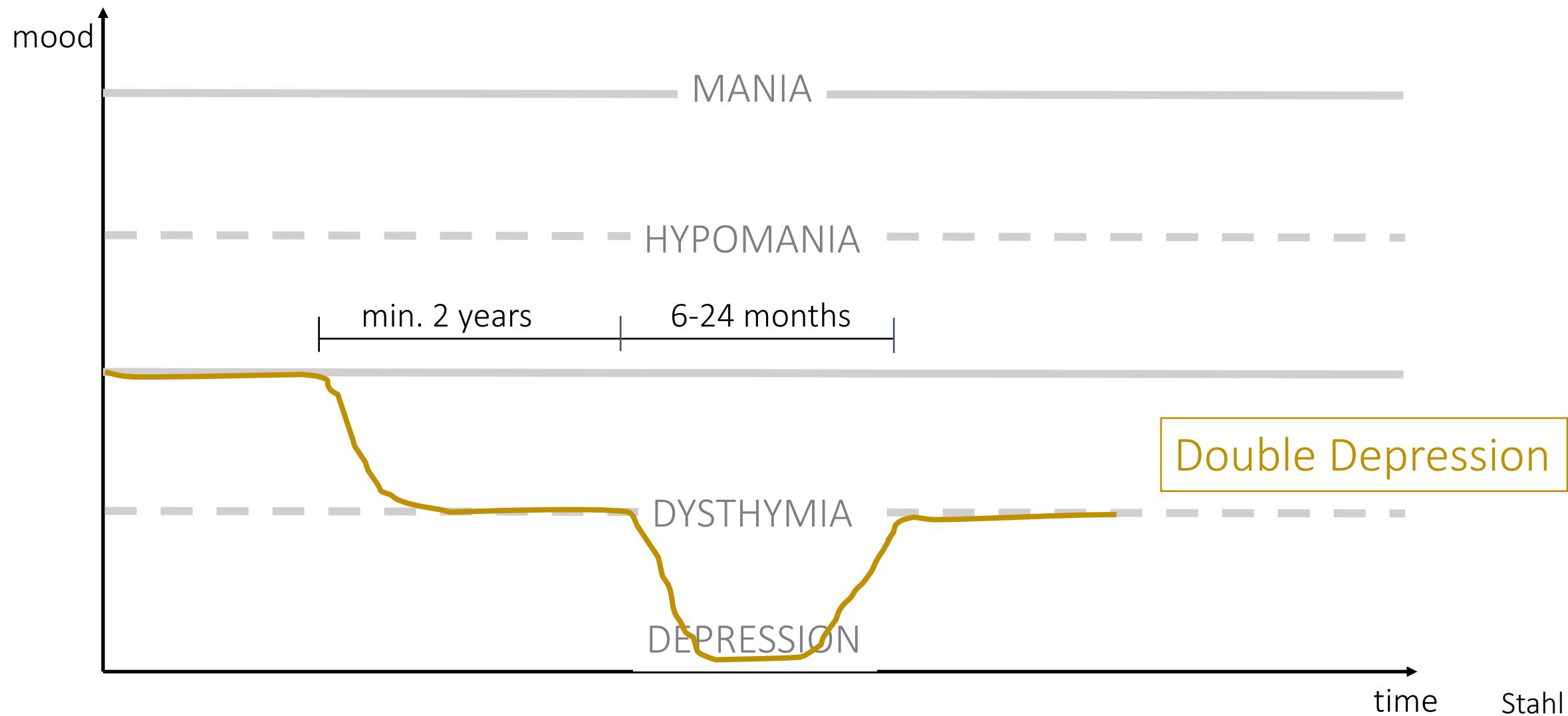
Disease progression



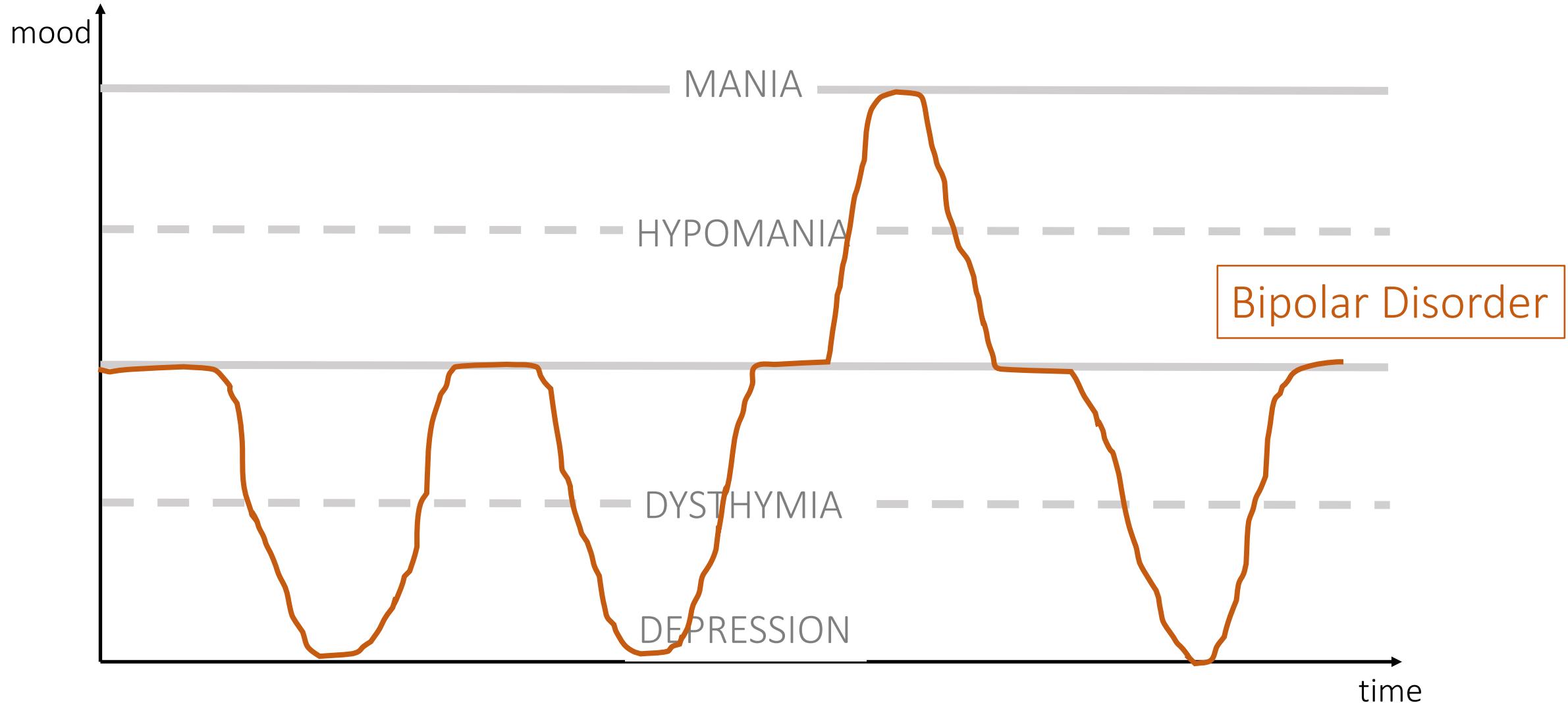
Disease progression



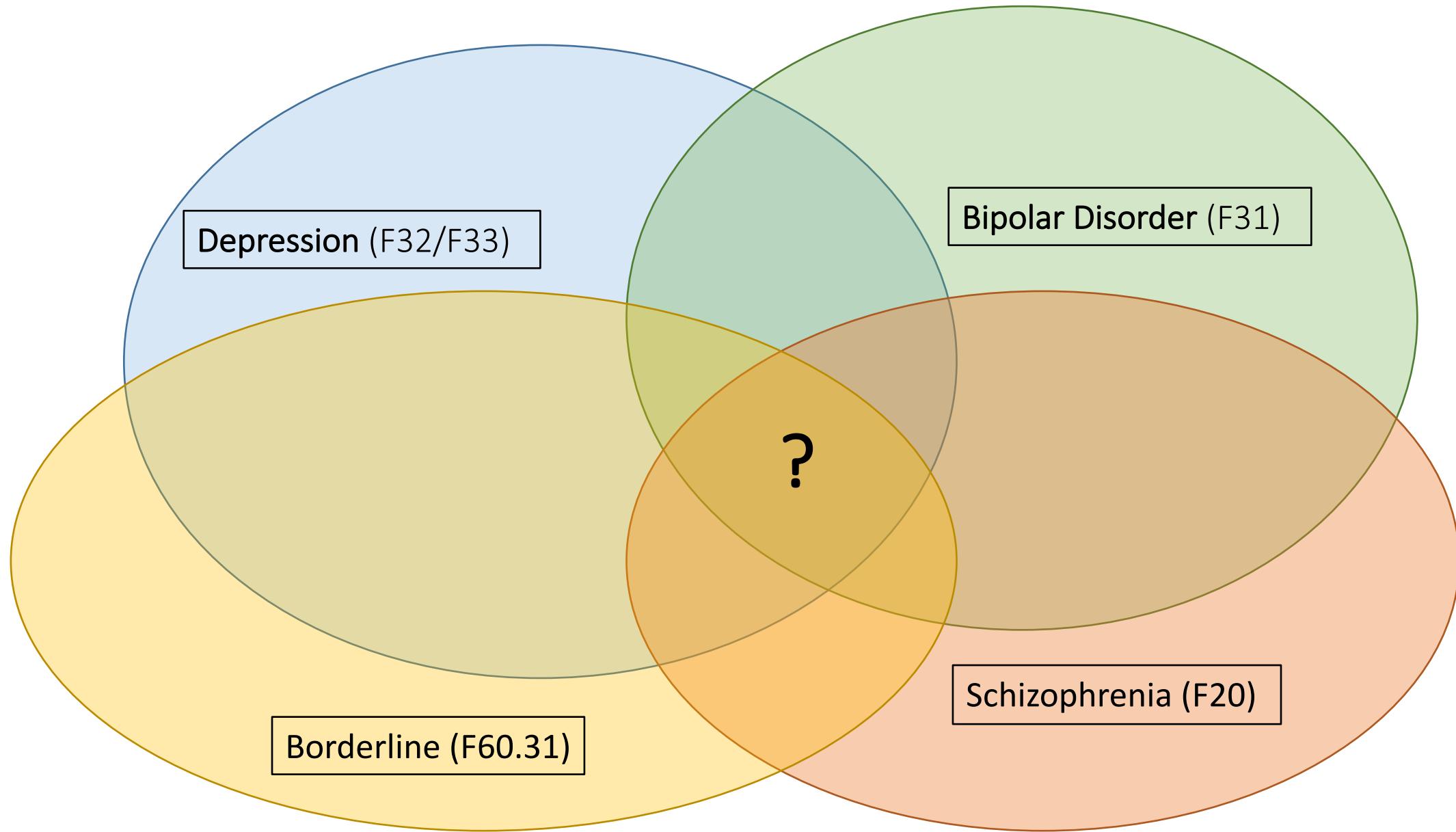
Disease progression



Disease progression



Why do we need a diagnosis?



Differential Diagnosis

= distinguishing a condition from others with similar features
≠ subgroups

Borderline Personality Disorder (F60.31)

Chronic feelings of emptiness

Medication: -

Therapy: e.g. DBT, TFP

Schizophrenia (F20)

Social withdrawal

Negative symptoms (Loss of interest or pleasure, apathy, flat affect)

Medication: antipsychotics

Therapy: e.g. psychosocial interventions

Bipolar Disorder (F31)

Depressive phase

Medication: mood stabilizer

Therapy: e.g. CBT, ...

Adjustment Disorder (F43.21)

With depressive mood

Medication: antidepressants?

Therapy: e.g. CBT, ...

Treatment



Intervention: Psychotherapy and/or medication

Setting: outpatient vs. inpatient



guidelines: DGPPN (Germany), NICE (UK)

Treatment: pharmacological

Selective serotonin reuptake inhibitors (SSRIs)

e.g. fluoxetine, escitalopram
> "serotonin-hypothesis"

Serotonin-noradrenaline reuptake inhibitors (SNRIs)

e.g. duloxetine, venlafaxine

Serotonin-antagonist/Alpha2-antagonist

e.g. mirtazapine

Tricyclic antidepressants (TCAs)

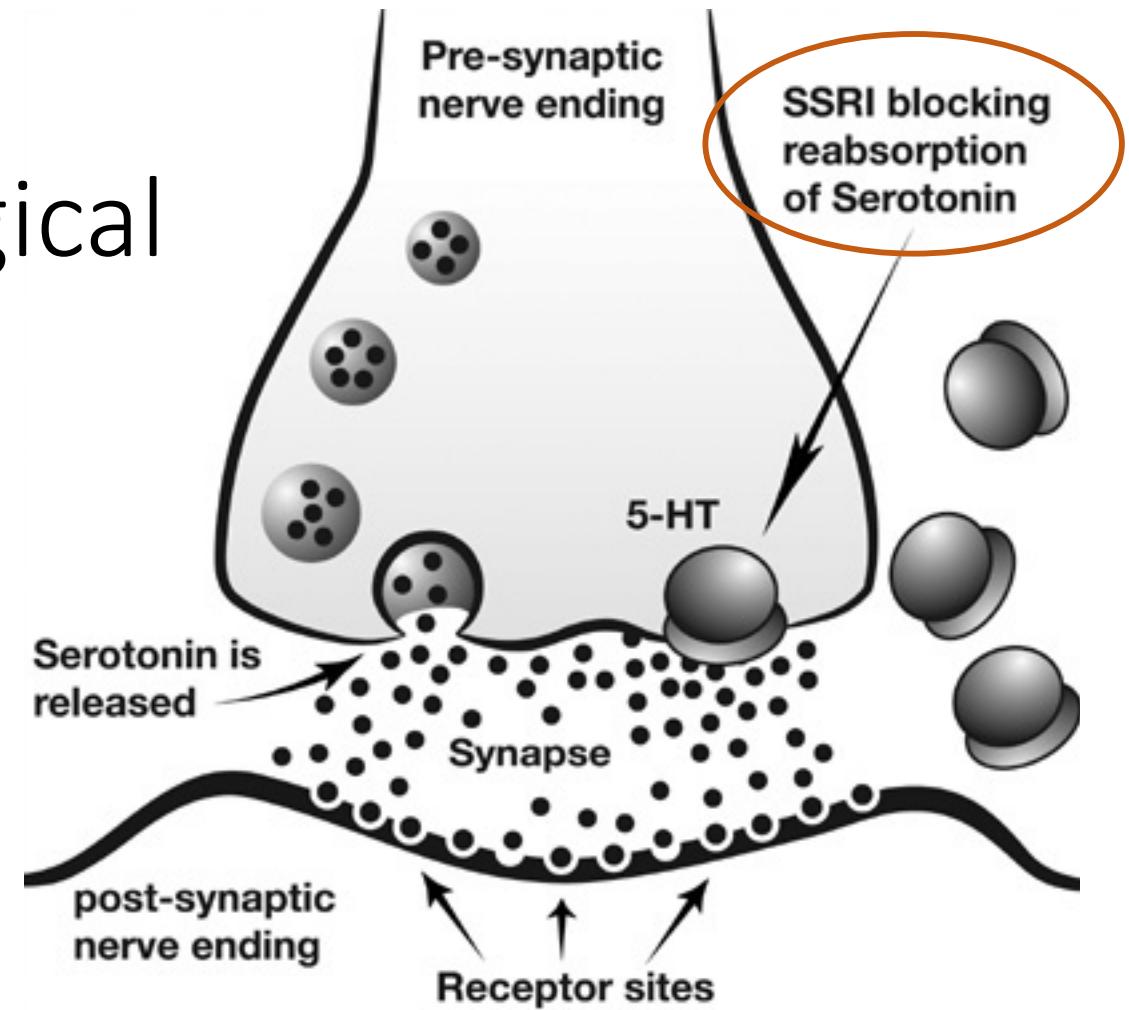
e.g. trimipramine, clomipramine

Monoamine oxidase inhibitors (MAOIs)

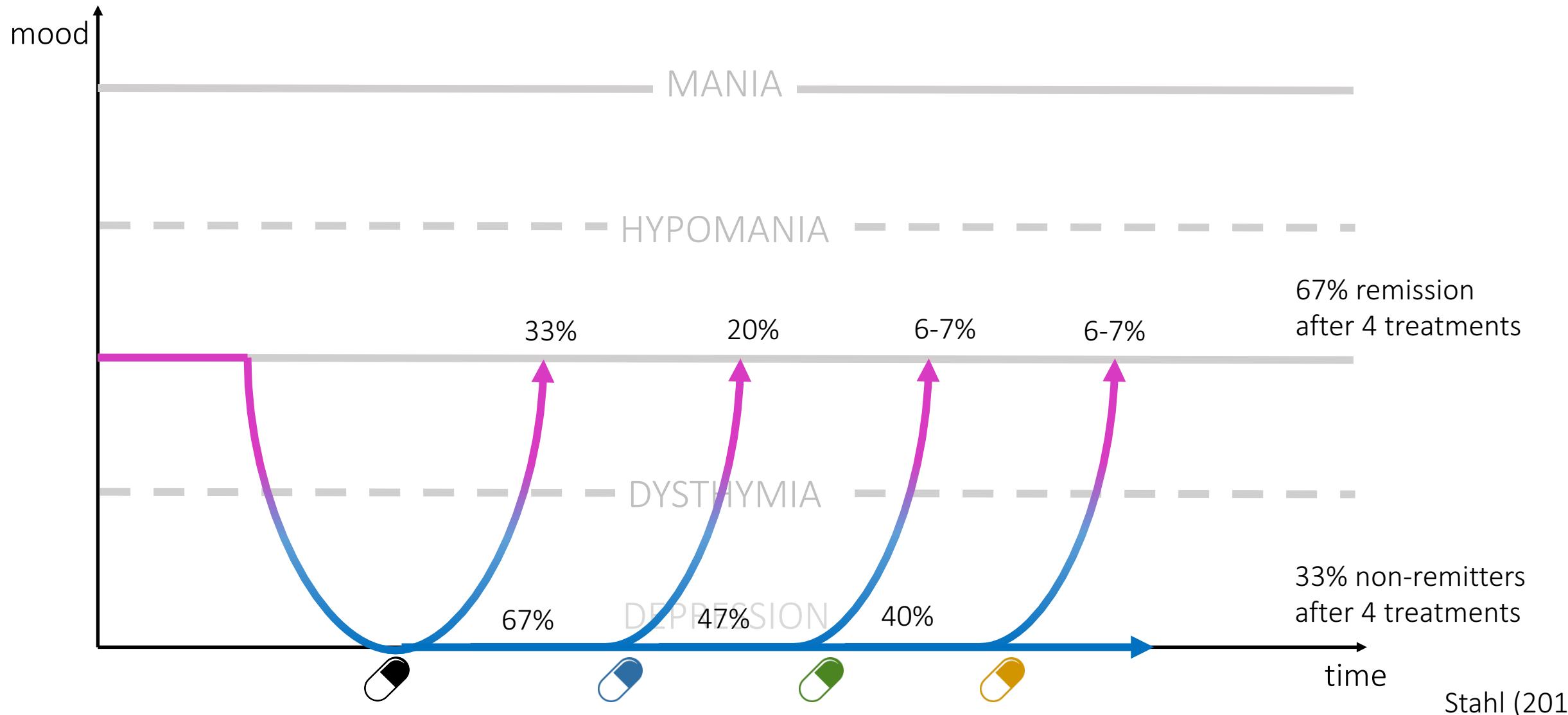
e.g. tranylcypromine

Other drugs

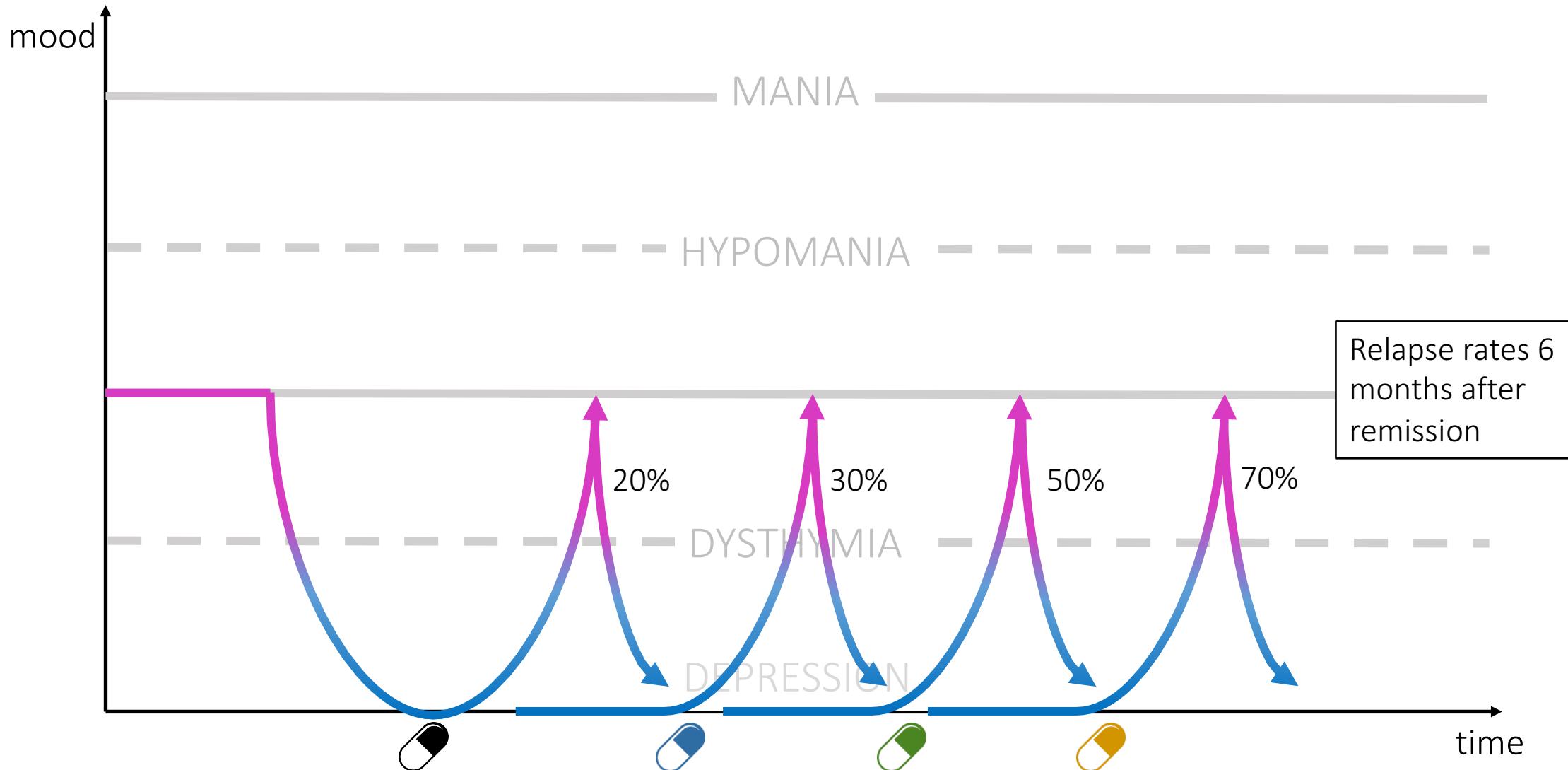
e.g. lithium, bupropion, antipsychotics, ketamine, ...



Treatment: pharmacological



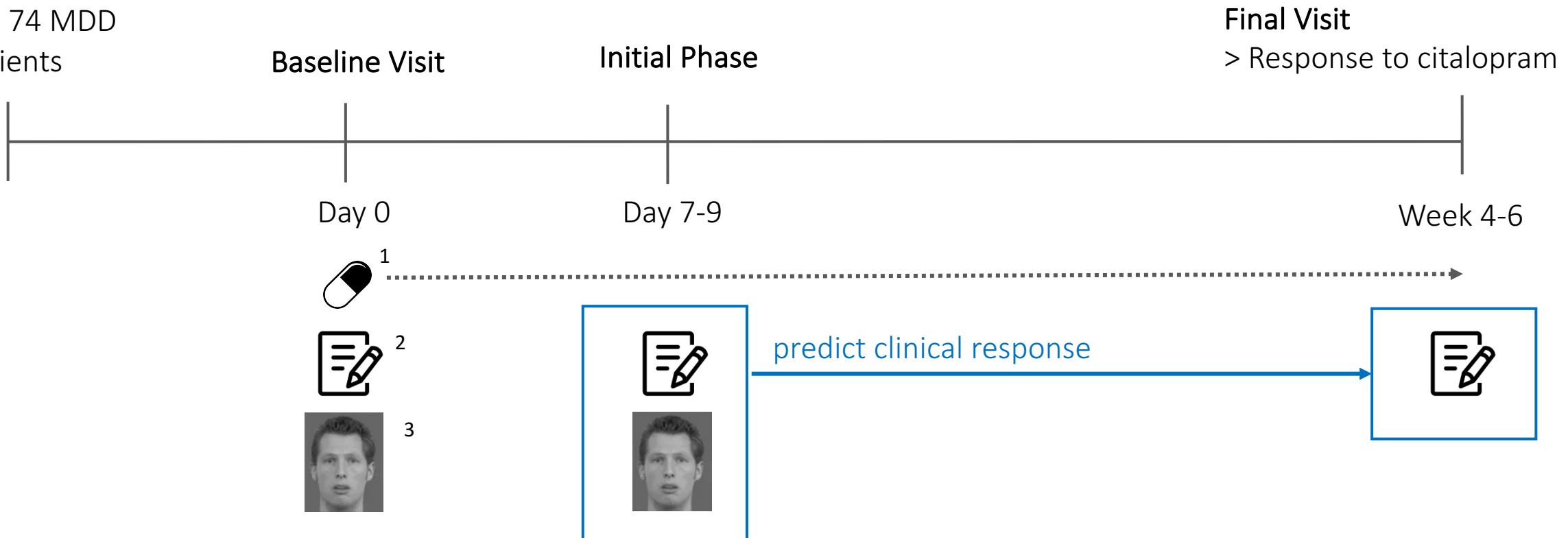
Treatment: pharmacological



Treatment: pharmacological

Recruitment

N = 74 MDD
patients

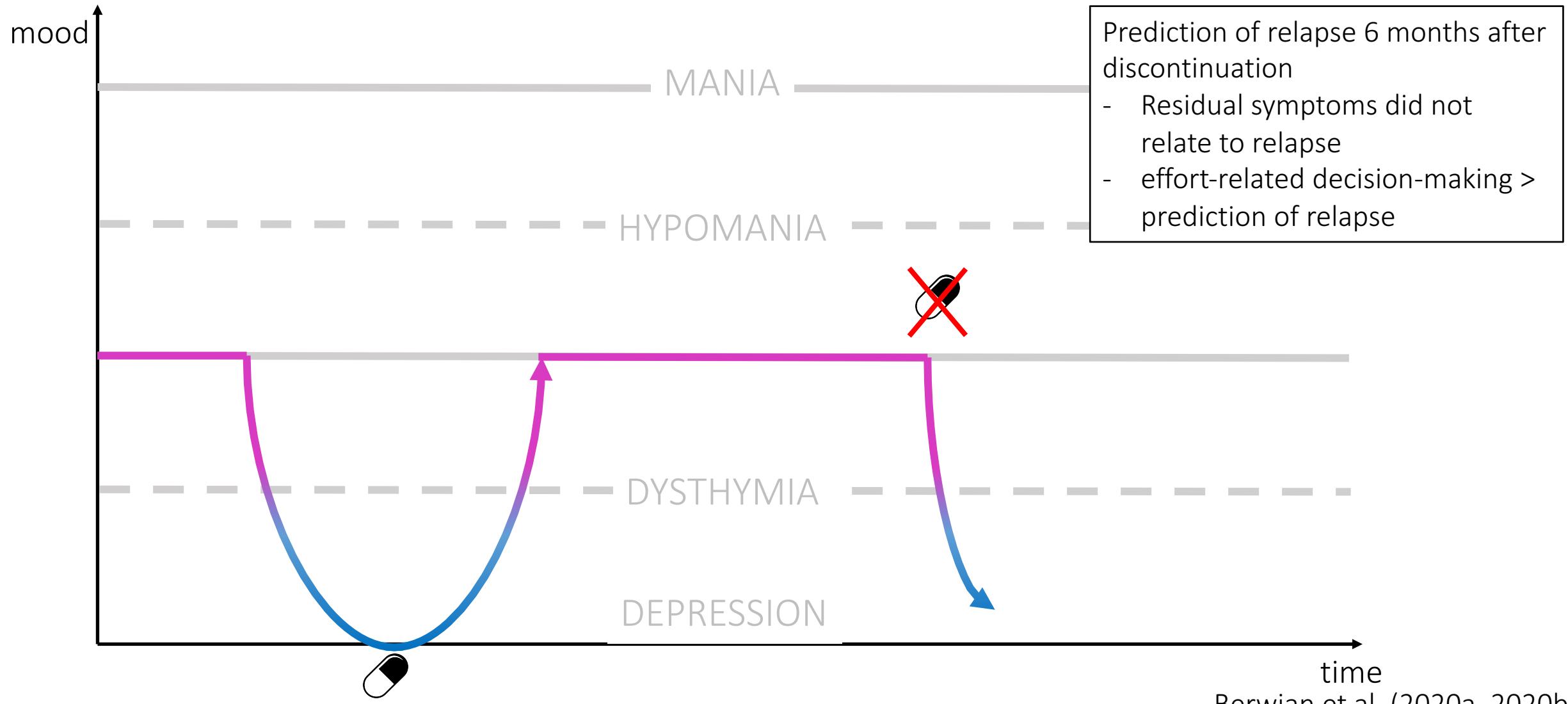


¹ citalopram = medication

² QIDS-SR₁₆ = depressive symptoms

³ face-based emotional recognition task = emotional bias

Treatment: discontinuation



Treatment: psychotherapy

- 70% of MDD patients prefer psychotherapy over pharmacological treatment
- Alliance-outcome association $r = .278$, $d = .579$
 - > Importance of therapeutic relationship!
- Combined treatment (psychotherapy + medication) is more effective than medication alone

Treatment: psychotherapy

CBASP
(McCullough)

Schema-Therapy
(Young)

Behavioural Activation
(Skinner)

Person-Centred Psychotherapy
(Rogers)

Cognitive Behavioural Therapy
(Beck, Skinner, Eysenck ...)

Clarification-oriented Psychotherapy
(Sachse)

Psychodynamic Therapies
(Kernberg, Fonagy, ...)

Mindfulness-Based Cognitive Therapy
(Teasdale, Kabat-Zin, ...)

Interpersonal Psychotherapy
(Sullivan, Klerman & Weissman)

Systemic Psychotherapy
(Ackerman)

Psychoanalysis
(Freud, Breuer, Jung, ...)

Acceptance- & Commitment Therapy
(Hayes)

Emotion-Focused Therapy
(Greenberg & Johnson)

(and many more)

Treatment: how is psychotherapy effective?



CBT, psychodynamic, humanistic, interpersonal therapies, ...



- problem actuation e.g. "I am unlikable"
- motivational clarification e.g. stays alone because of fear of rejection
- mastery/competence e.g. strategies to help fall asleep
- resource activation e.g. reactivate free time activities
- therapeutic alliance e.g. shows himself vulnerable > no punishment

(Grawe, 2004)

Etiology: Learned Helplessness

Depression = learned behaviour

Recurring lack of control over aversive aspects of environment
→ generalized belief of low self-efficacy / lack of control → depression

Causal attribution of failure
= internal, global, stable

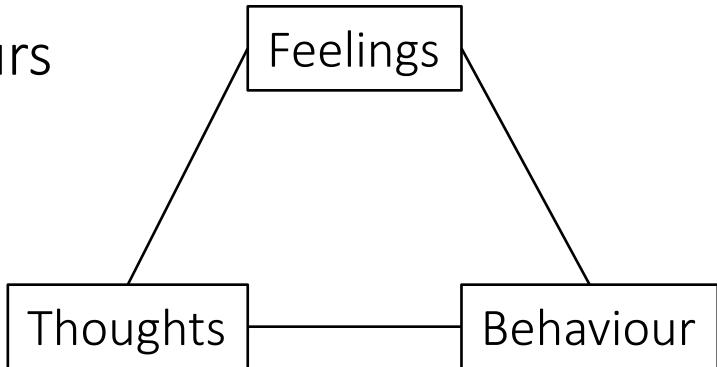


Abramson, Seligman & Teasdale (1978), see also Stephan et al. (2016)

Cognitive Behavioural Therapy



Focus of interventions: maladaptive thoughts and behaviours



Vincent's mood journal

Situation/Trigger	Automatic Thoughts <i>How true? 0-100%</i>	Mood / Feelings <i>How strong? 0-100</i>	Alternative Thoughts <i>How true? 0-100%</i>
My co-worker did not greet me this morning.	"I am unlikeable" – 100 "If I worked harder, she would like me" – 90	Sadness – 90 Guilt – 90 Shame – 90	"Maybe she did not pay attention" – 60 "Maybe she was busy doing/thinking of something else" – 60 "Maybe she is not a morning person" – 80
...

Future directions / open questions

- Medication: individualized treatment recommendations
- Predictions: e.g. risk of relapse / recurrent episode
- Diagnostics: differential diagnosis, comorbidities
- Suicidality: e.g. risk predictions
- Mechanisms of psychotherapy

Tests must be practical and acceptable in clinical context!



Thank you



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... and the whole TNU Team

Appendix

Anxiety Disorders

- F41.1 Generalized anxiety disorder
 - Imaginative exposure to worries
- F41.0 Panic disorder
 - Interoceptive conditioning & -exposure, progressive muscle relaxation (PMR), psychoeducation
- F40.0 Agoraphobia
- F40.1 Social anxiety disorder/social phobia
- F40.2 Specific phobias: e.g. arachnophobia, claustrophobia, acrophobia,, ...
 - Two-factor theory (Mowrer), exposure therapy (in sensu vs. in vivo)
- F42.- Obsessive-compulsive disorder and F43.1 post-traumatic stress disorder
(classified as anxiety disorder by ICD-10, but separate chapters in DSM-5)
 - OCD: exposure and response prevention (ERP)
 - PTSD: prolonged exposure therapy, cognitive processing therapy, eye movement desensitization and reprocessing (EMDR), narrative exposure therapy (NET),

Therapy: Psychoeducation, relaxation and exposure therapy are the basis of treatment for any anxiety disorder

Medication: SSRIs! Careful with benzodiazepines due to addiction potential