Terugval voorspellen om te voorkomen:

Break-out sessie 7

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Universitair Medisch Centrum Groningen

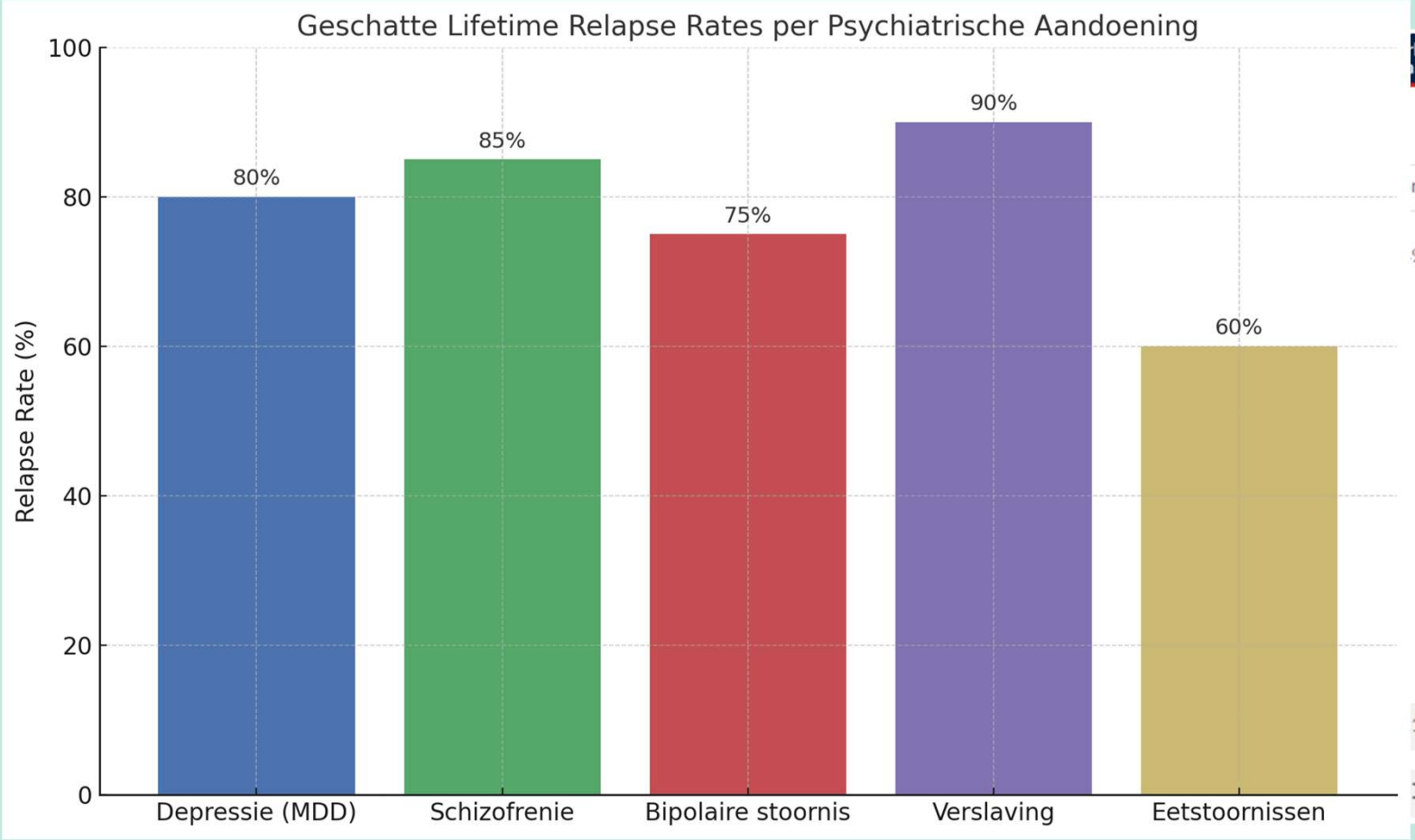
Prof.dr. Iris Sommer

Disclosure slide

(potentiële) belangenverstrengeling	Geen
Voor bijeenkomst mogelijk relevante relaties met bedrijven	n.v.t.
• Sponsoring of onderzoeksgeld • Honorarium of andere (financiële) vergoeding • Aandeelhouder • Andere relatie, namelijk …	n.v.t.

Wie zijn jullie, waar zijn jullie werkzaam?

Prevalentie



Beloop

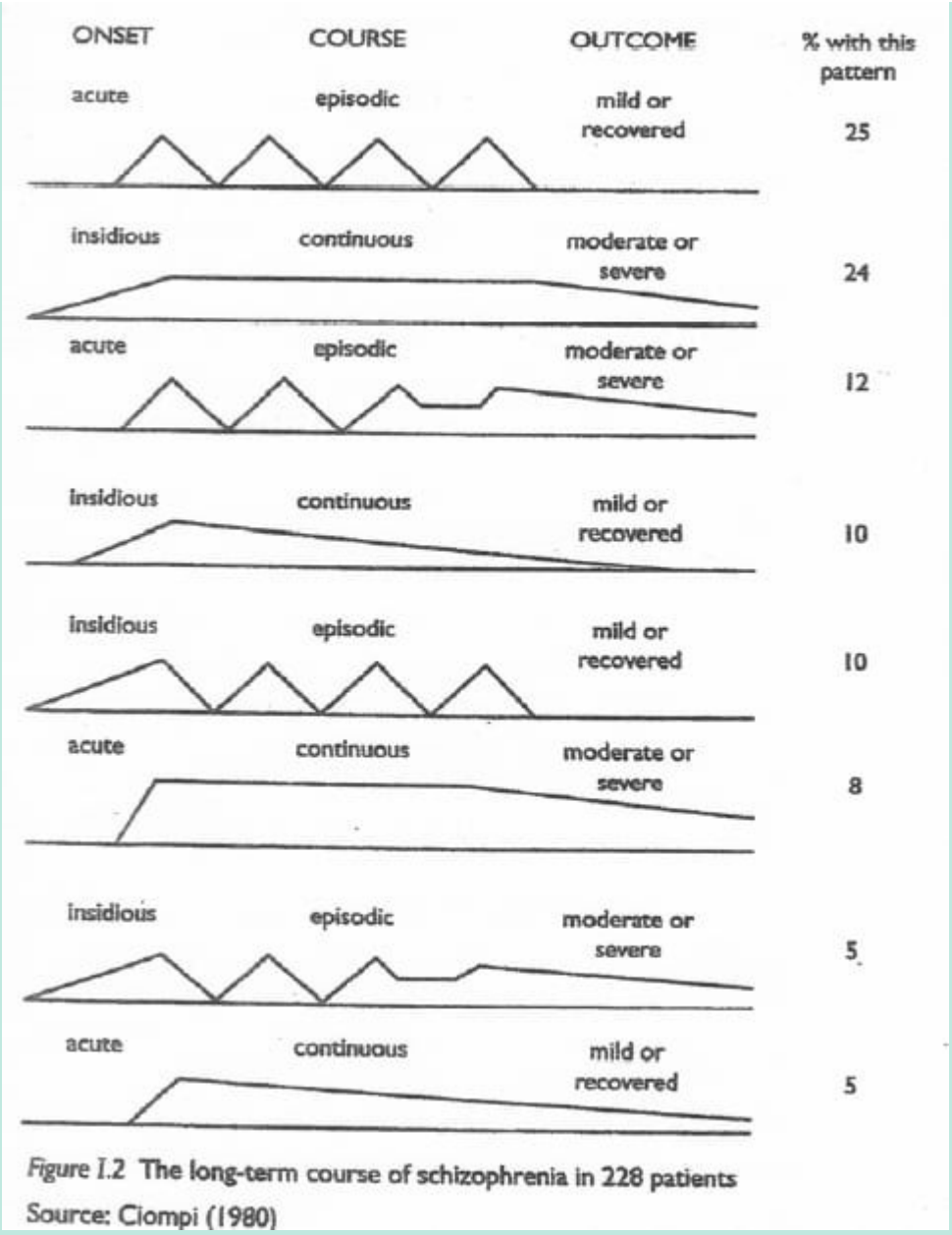
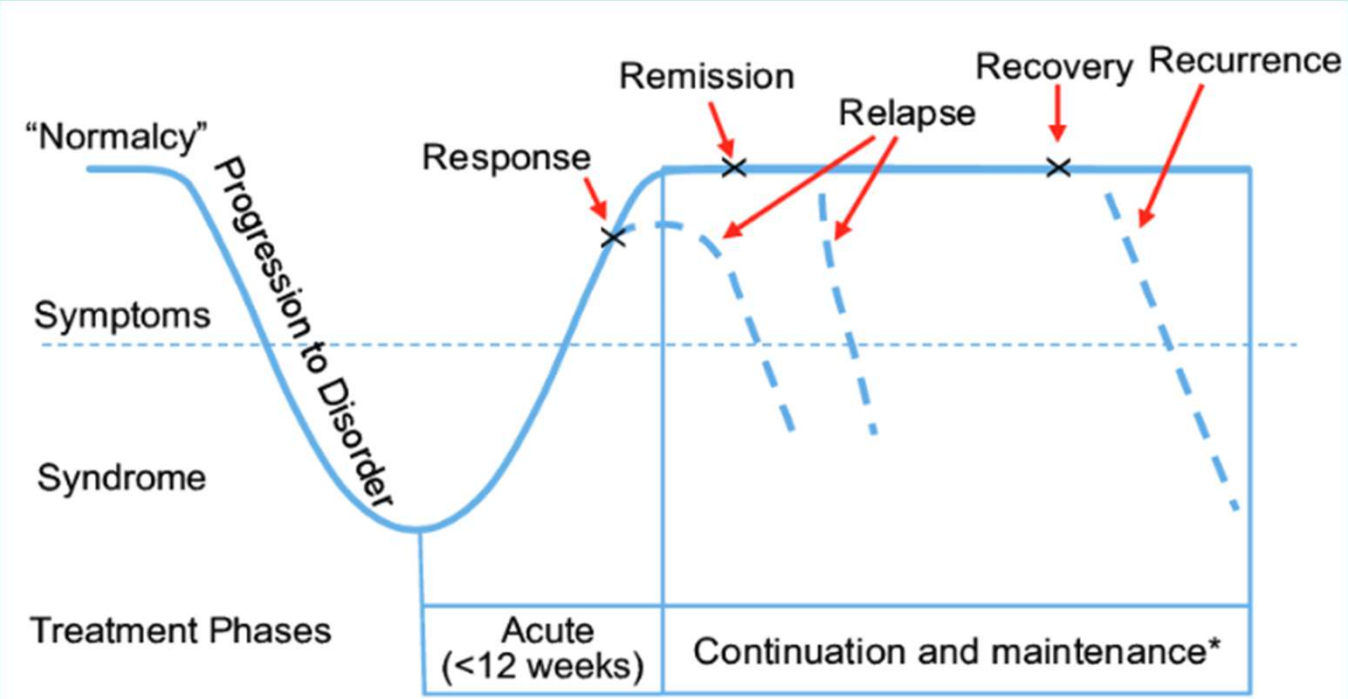


Figure I.2 The long-term course of schizophrenia in 228 patients

Source: Ciompi (1980)

Relapse versus recurrence



Phases of treatment of major depression Adapted: Kupfer DJ. Long-term treatment of depression. J Clin Psychiatry 1991:52 (Suppl):28-34 *Refer to Subchapter 4.2.1 B on Pharmacotherapy.

Psychose

Hallucinaties

Wanen

Gedesorganiseerd spraak & gedrag

Eerste psychose

Prevalentie ± 34 per 100.000 persoonsjaren

Gemiddelde leeftijd: ♂30 ♀33

Schizofrenie

Positieve symptomen

Hallucinaties, wanen, gedesorganiseerde spraak

Negatieve symptomen

Spraakarmoede, motivatieproblemen, weinig intiatief en gevoelens

Cognitieve symptomen

Problemen met concentratie en planning

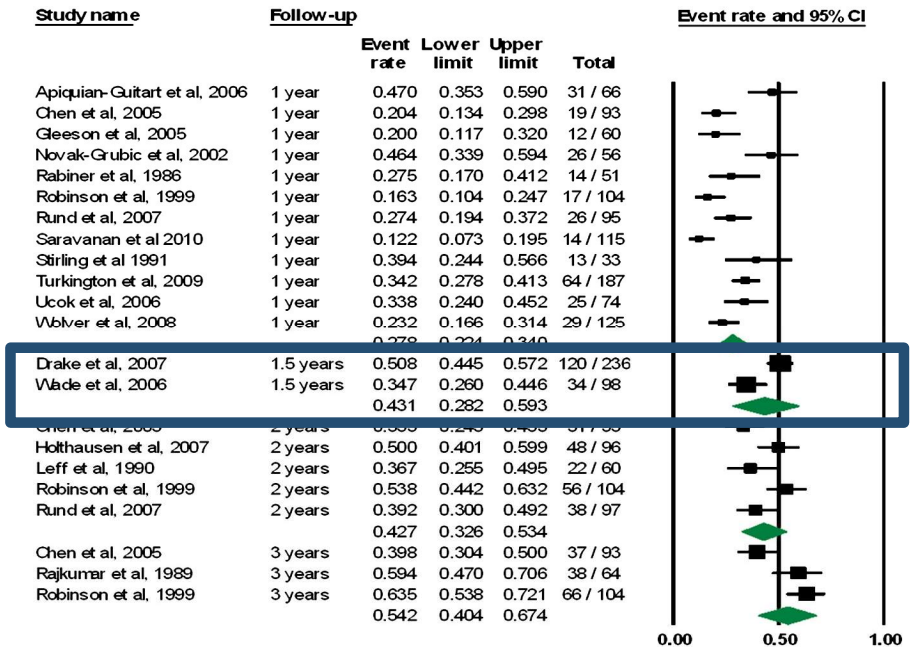
Psychotische terugval

43% ervaart een terugval binnen 1.5 jaar na remissie van eerste psychose

Psychotische terugval is gelinkt aan

- verslechterde cognitie
- verminderd sociaal functioneren
- slechtere klinische prognose

Cuesta 2022, Berge 2016, Hui 2016



Gepoolde prevalentie van terugval van positieve symptomen na eerste psychotische episode

Alvarez-Jimenez et al. 2012

Vooruit zien

Predictiemodellen:

- Data
- Analyses/algoritmes
- Klinische kennis

Data bronnen:

- Klinische gegevens
- Spraak
- EPD
- Bloed / medische beeldvorming
- Smartphone/wearables

Hoe kijken jullie aan tegen voorspellen als vorm van preventie?

Vooruit zien

Predictiemodellen:

- Data
- Analyses/algoritmes
- Klinische kennis

Data bronnen:

- Klinische gegevens
- Spraak
- EPD
- Bloed / medische beeldvorming
- Smartphone/wearables

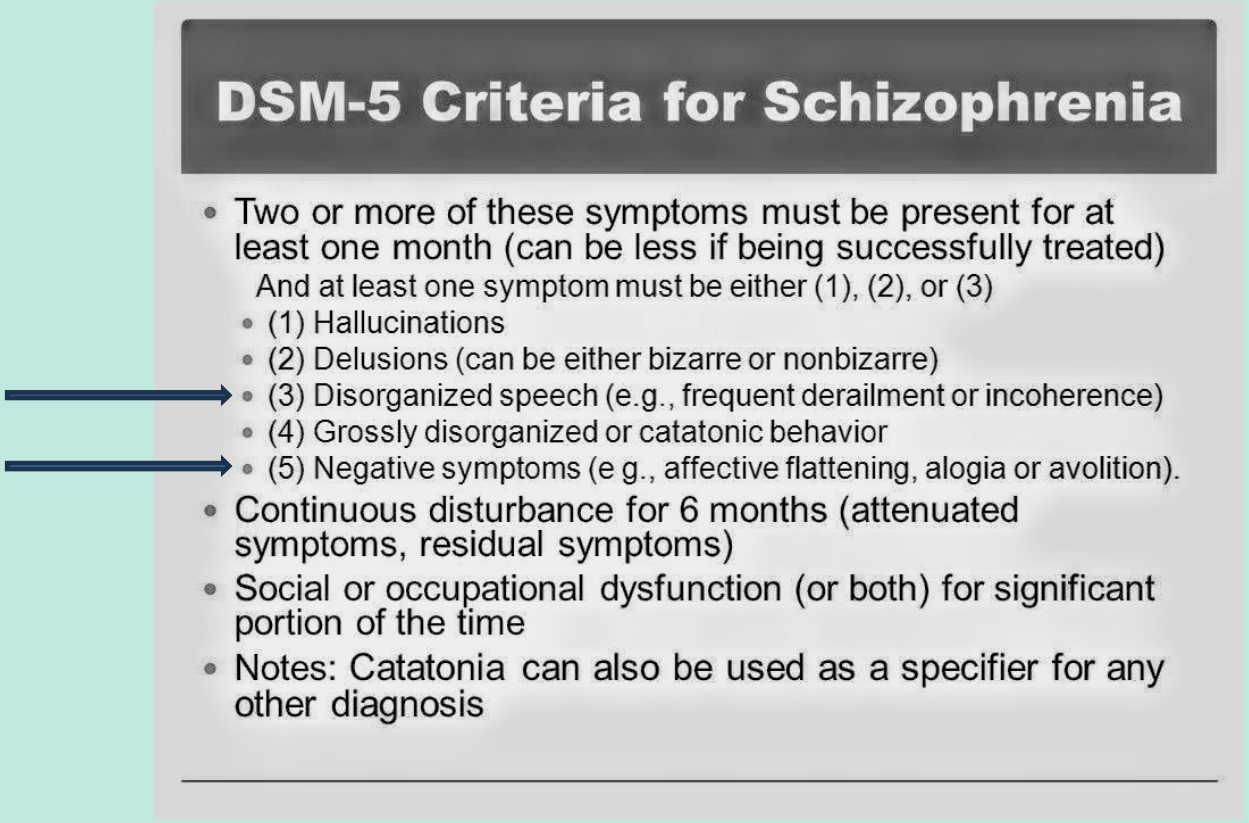
Klinische predictiemodellen





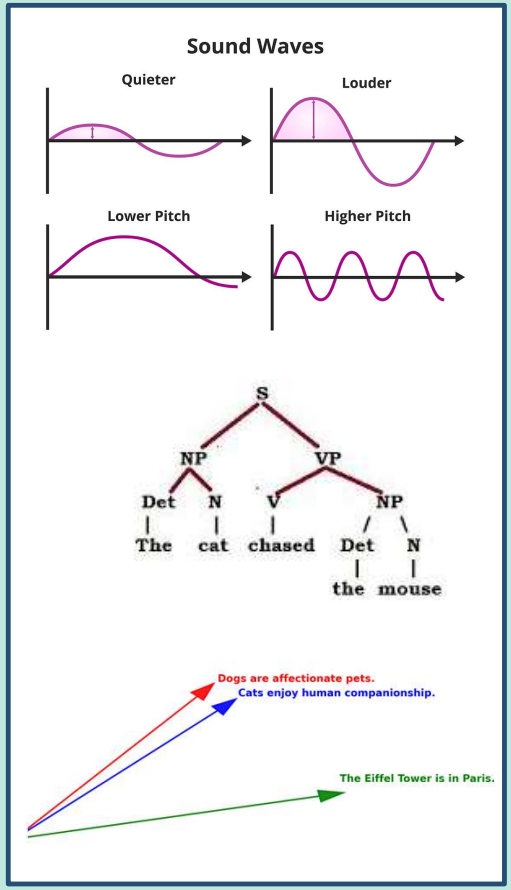
Solmi et al., Molecular Psychiatry, 2023

Spraak en psychiatrie?



Clinici bepalen symptomen mede middels taal!

Spraak en taal-metingen

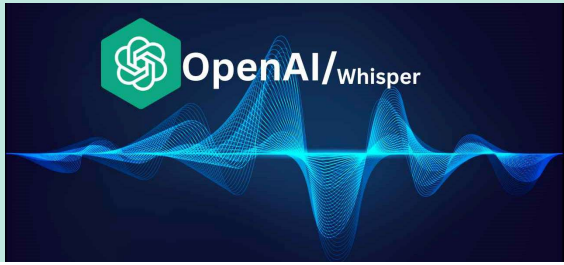


Acoustic-Prosodic Analysis: Intonation, Pauses, Loudness

Syntactic Analysis: Sentence structure and complexity

Semantic Similarity Analysis: Conceptual organization, often referred to as ‘coherence’

Sentiment Analysis: Emotional Valence (positive, negative, neutral)



Toepassing van spraak en taal-analyses

- Predicting **symptom severity**
  (Holmlund et al., 2020, Liebenthal et al., 2023)
- Identifying **transition** to psychosis in high-risk individuals
  (Morgan et al., 2021, Spencer et al., 2021)
- Supporting (differential) **diagnosis**
  (Mota et al., 2014, Olah et al., 2024)
- Assessing substance use and relapse risk
  (Ahuia, 2025, Zaher et al., 2024)

The Trusting project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101080251.

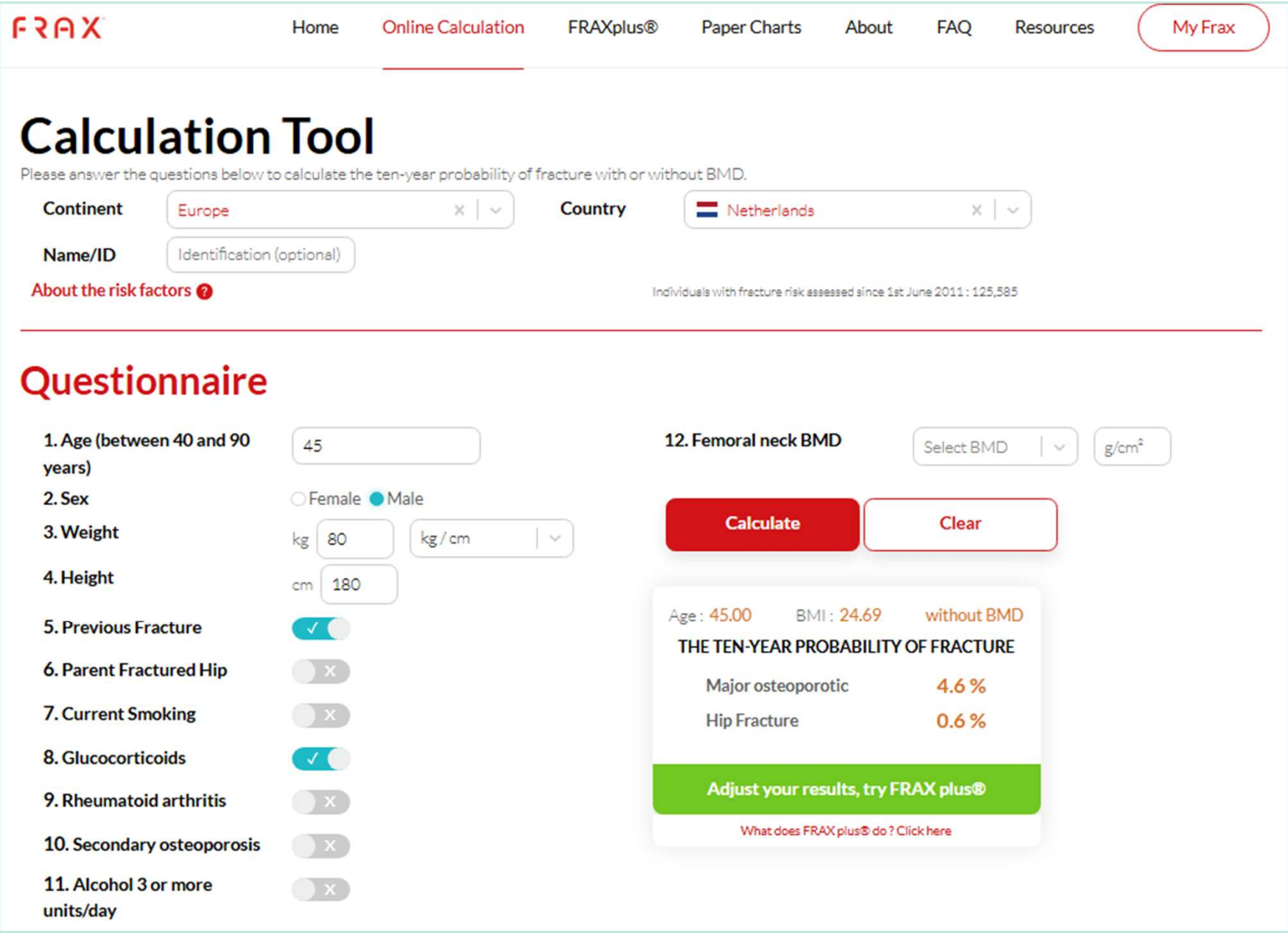
TRUSTING

Develop a user-friendly, trustworthy speech-based tool for the prediction of relapse in psychosis

www.trusting-project.eu

Relapse prediction: speech models can predict relapse based on primarily acoustic information with **73% accuracy**, up to 3 months in advance (TRUSTING, preliminary findings).

Wat is jullie ervaring met predictie(modellen) in de zorg?


FRAX
Home
Online Calculation
FRAXplus®
Paper Charts
About
FAQ
Resources
My Frax
Calculation Tool
Please answer the questions below to calculate the ten-year probability of fracture with or without BMD.
Continent
Europe
Country
Netherlands
Name/ID
Identification (optional)
About the risk factors
Individuals with fracture risk assessed since 1st June 2011 : 125,585
Questionnaire
1. Age (between 40 and 90 years)
45
2. Sex
Female
Male
3. Weight
kg
80
kg / cm
4. Height
cm
180
5. Previous Fracture
6. Parent Fractured Hip
7. Current Smoking
8. Glucocorticoids
9. Rheumatoid arthritis
10. Secondary osteoporosis
11. Alcohol 3 or more units/day
12. Femoral neck BMD
Select BMD
g/cm²
Calculate
Clear
Age : 45.00
BMI : 24.69
without BMD
THE TEN-YEAR PROBABILITY OF FRACTURE
Major osteoporotic
4.6 %
Hip Fracture
0.6 %
Adjust your results, try FRAX plus®
What does FRAX plus® do ? Click here

Welcome to the QRISK®3-2018 risk calculator https://qrisk.org

This calculator is only valid if you do not already have a diagnosis of coronary heart disease (including angina or heart attack) or stroke/transient ischaemic attack, and not on statins.

Reset | Information | Publications | About | Copyright | Contact Us | Algorithm | Software | UKCA

About you

Age (25-84): 30

Sex: ◉ Male ○ Female

Ethnicity: Indian

UK postcode: leave blank if unknown

Postcode:

Clinical information

Smoking status: moderate smoker (10 to 19)

Diabetes status: none

Angina or heart attack in a 1st degree relative < 60? ☐

Chronic kidney disease (stage 3, 4 or 5)? ☐

Atrial fibrillation? ☐

On blood pressure treatment? ☐

Do you have migraines? ☐

Rheumatoid arthritis? ☐

Systemic lupus erythematosus (SLE)? ☐

Severe mental illness? ☑
(this includes schizophrenia, bipolar disorder and moderate/severe depression)

On atypical antipsychotic medication? ☐

Are you on regular steroid tablets? ☐

A diagnosis of or treatment for erectile disfunction? ☐

Leave blank if unknown

Cholesterol/HDL ratio:

Systolic blood pressure (mmHg):

Standard deviation of at least two most recent systolic blood pressure readings (mmHg):

Body mass index

Height (cm): 180

Weight (kg): 100

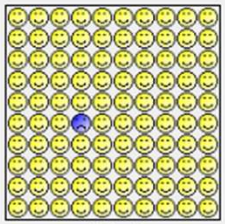
Your results

Your risk of having a heart attack or stroke within the next 10 years is:

1.3%

Note. The score is based on a cohort of patients without pre-existing cardiovascular disease and not on statins at the start. The cohort includes patients who subsequently started statins (or other lifestyle modifications). Consequently the actual risk of a patient may be more than this score implies if they do not take preventative actions. If they do take preventative actions the risk would be reduced.

In other words, in a crowd of 100 people with the same risk factors as you, 1 are likely to have a heart attack or stroke within the next 10 years.



Risk of a heart attack or stroke

Your score has been calculated using estimated data, as some information was left blank.

Your body mass index was calculated as 30.86 kg/m^2.

How does your 10-year score compare?

Your score	
Your 10-year QRISK®3 score	1.3%
The score of a healthy person with the same age, sex, and ethnicity*	0.4%
Relative risk**	3.6
Your QRISK®3 Healthy Heart Age***	38

* This is the score of a healthy person of your age, sex and ethnic group, i.e. with no adverse clinical indicators and a cholesterol ratio of 4.0, a stable systolic blood pressure of 125, and BMI of 25.

** Your relative risk is your risk divided by the healthy person's risk.

*** Your QRISK®3 Healthy Heart Age is the age at which a healthy person of your sex and ethnicity has your 10-year QRISK®3 score.

Psychosis Risk Calculation - Printed Summary: 17/06/2025 22:29:50

Your entry was;

Age: **30**
Gender: **Male**
Ethnicity: **Asian**
Diagnosis Category: **Acute and transient psychotic disorders**
Diagnosis Name: **Acute and transient psychotic disorders**

Calculation is:

Prognostic Index (PI): **2.054**
Risk of psychosis at 1 year: **20.2% (1:5)**
Risk of psychosis at 2 years: **30.7% (1:3)**
Risk of psychosis at 3 years: **38.1% (1:3)**
Risk of psychosis at 4 years: **44.5% (1:2)**
Risk of psychosis at 5 years: **49.5% (1:2)**
Risk of psychosis at 6 years: **52.6% (1:2)**

The risk calculator was validated in individuals accessing secondary mental health care and diagnosed by mental health professionals according to the ICD-10 or the CAARMS 12/2006. Therefore, the tool is not usable under other circumstances.

www.psychosis-risk.net

Hoe vinden jullie deze sites eruit zien?

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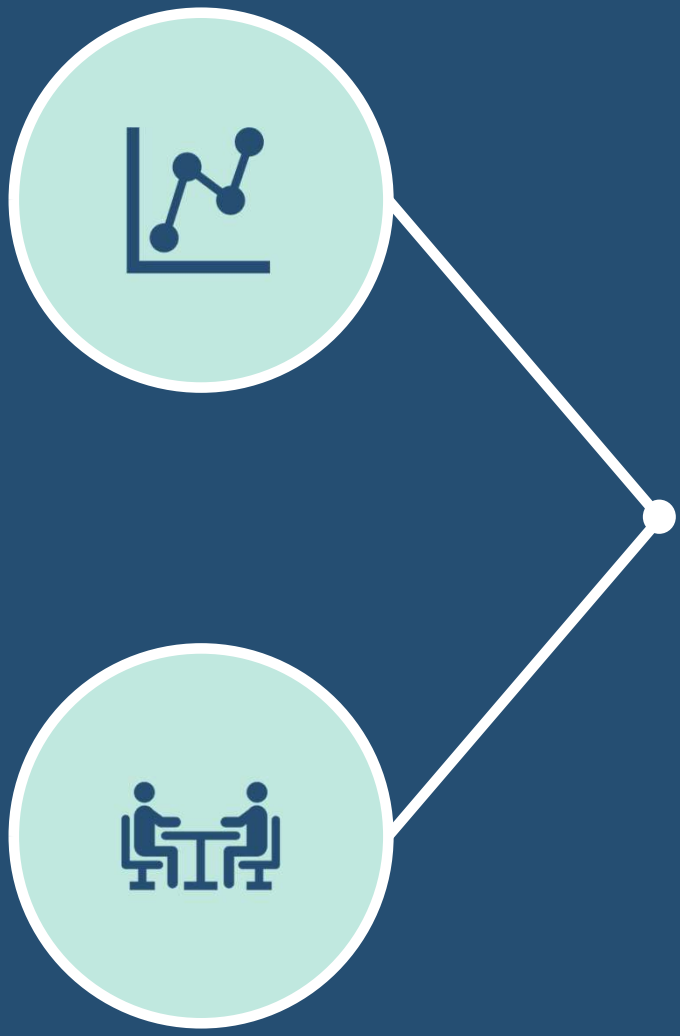
Praktijkvoorbeeld:

Hoe groot is de kans dat iemand psychose-vrij blijft?

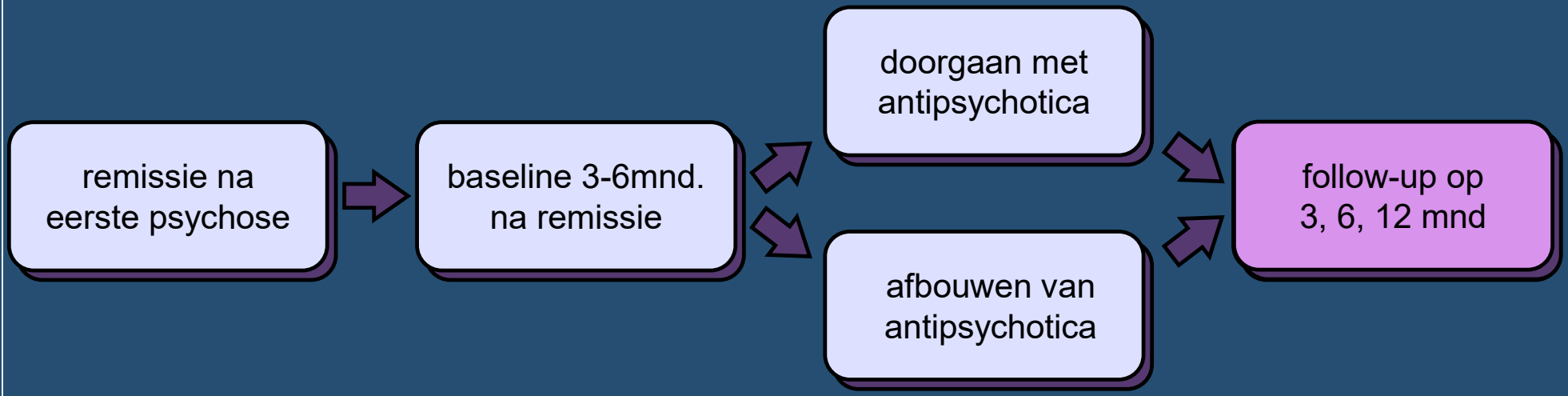


Voorspellen van psychotische terugval binnen 1.5 jaar na remissie van eerste psychose

HAMLETT

Antipsychotica doorgaan vs. afbouwen

in eerste psychose patiënten na remissie



Begemann et al. 2020

Terugval

- Hospitalisatie
- Klinisch oordeel
- Toename ≥12 punten op PANSS totaalscore

Siafis et al. 2023

Scientific optimal model

Develop prognostic models with all available predictors to assess optimal performance

Discussions with psychiatrists

Identify with psychiatrists which measures could be obtained in a single consult

Models with predictors that can be obtained in 1 consult

Develop prognostic models with predictors that may be obtained in a single consult

Clinically applicable models with only 10 predictors

Clinically feasible models with only 10 predictors would take max. ±30 minutes to complete

HAMLETT

Antipsychotica doorgaan vs. afbouwen

in eerste psychose patiënten na remissie

psychotische symptomen

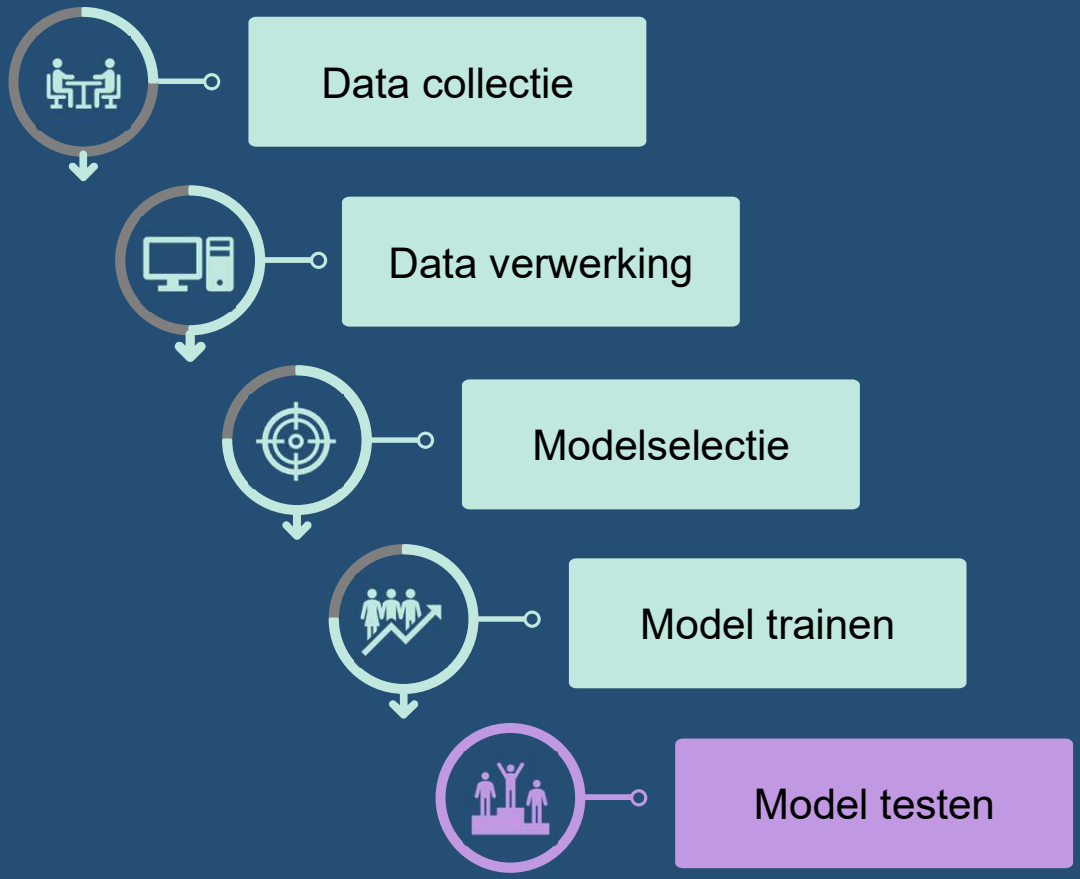
functioneren sociaal & werk

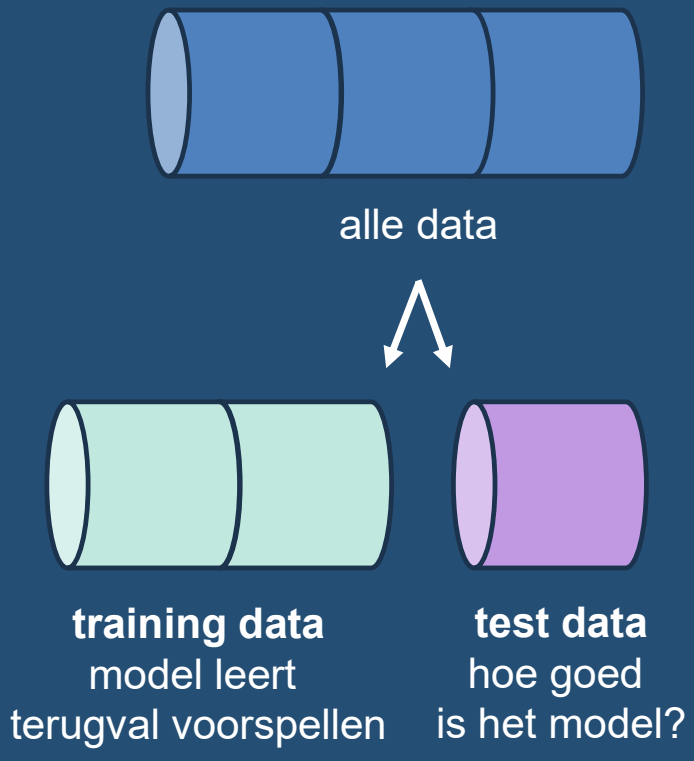
medicatie

cognitie

bijwerkingen

lichamelijke gezondheid


Data collectie
Data verwerking
Modelselectie
Model trainen
Model testen


alle data
training data
model leert
terugval voorspellen
test data
hoe goed
is het model?

Modellen vergelijken

LASSO

XGB

Wat zijn jullie eerste gedachten bij dit predictiemodel voor psychotische terugval?

Hoe zou jij dit predictiemodel gebruiken?

- Voor wie?
- Wanneer?
- Hoe veel tijd heb je ervoor?
- (Hoe) bespreek je het risico?
- Hoe handel je naar het risico?

Uitdagingen

Wat is nodig om predictie echt werkbaar te maken in de praktijk?

- Welke barrières?
- Ethische vraagstukken?

Met dank aan

HAMLETT

TRUSTING

Vragen?

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- Illustration by Vladyslav Bobuskyi (conclusion slide)