

◆ THE QUESTION WE SET OUT TO ANSWER ◆

Can routine outcome monitoring — questionnaires only, no session text — be turned into a personalized forecast of who improves, in which domain, and who is at risk of deterioration?

We set out to answer this with **11 years** of the clinic's routine data — a broad, multi-informant, session-by-session battery.

OUR APPROACH a two-phase machine-learning program — **benchmark** a per-client outcome forecast at **session 3-5**, then **personalize** it by domain & flag deterioration

17,326

sessions

924

dyads

693

clients

504

therapists

129,894

questionnaire administrations

22

measures

3

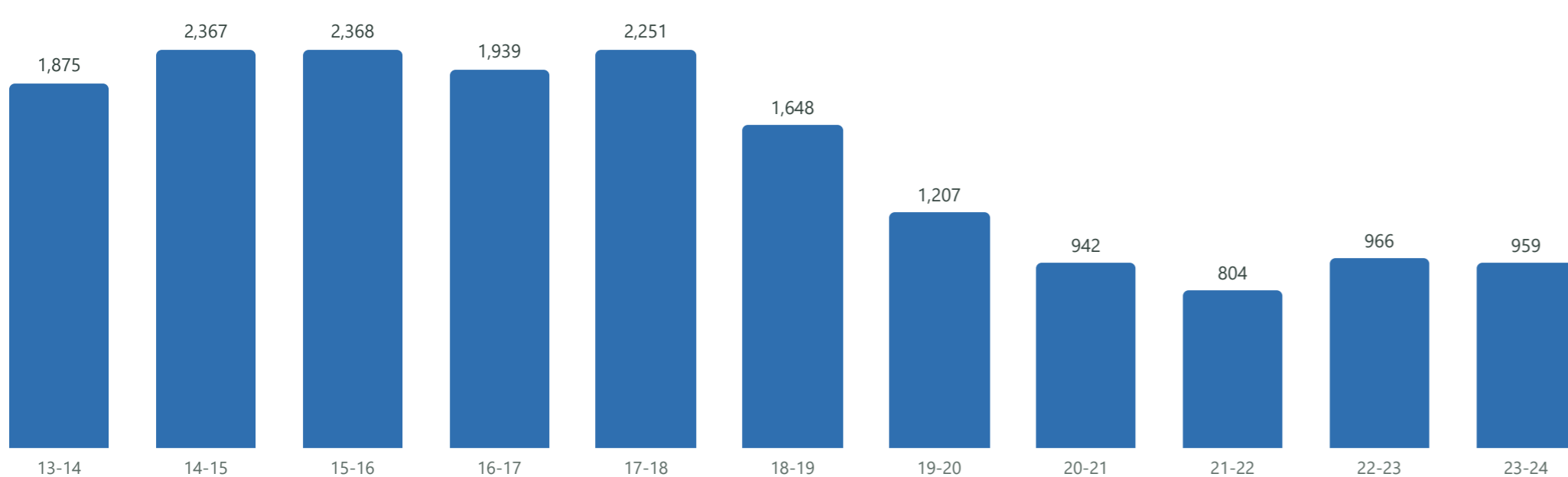
informants

11

years 2013-24

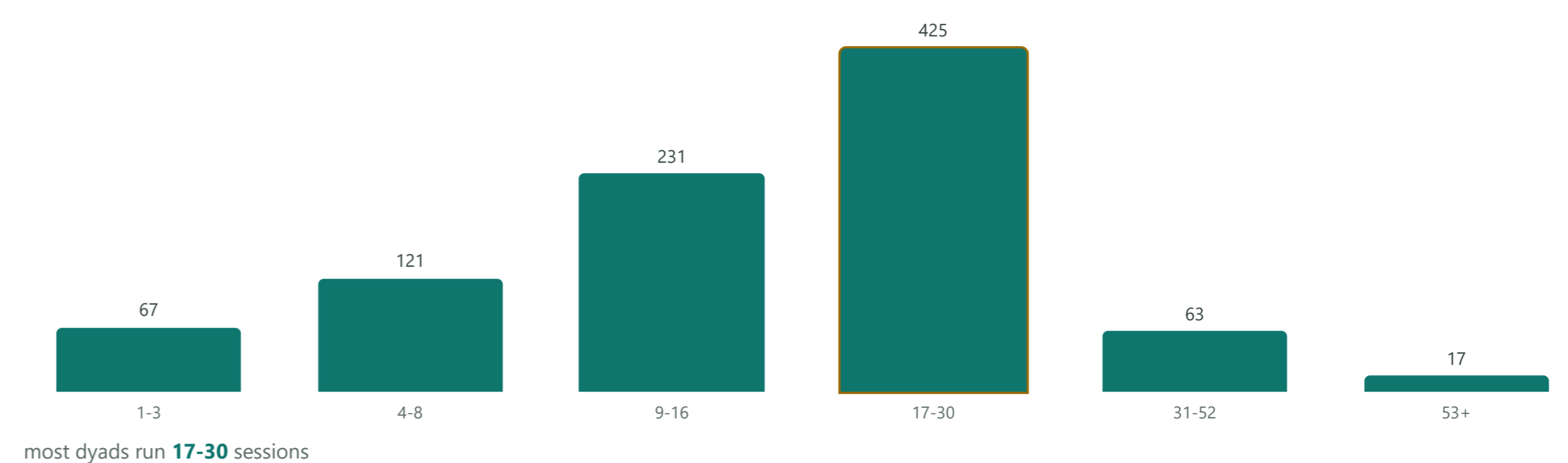
Sessions per year

17,326 across 11 years (COVID/war dip visible)



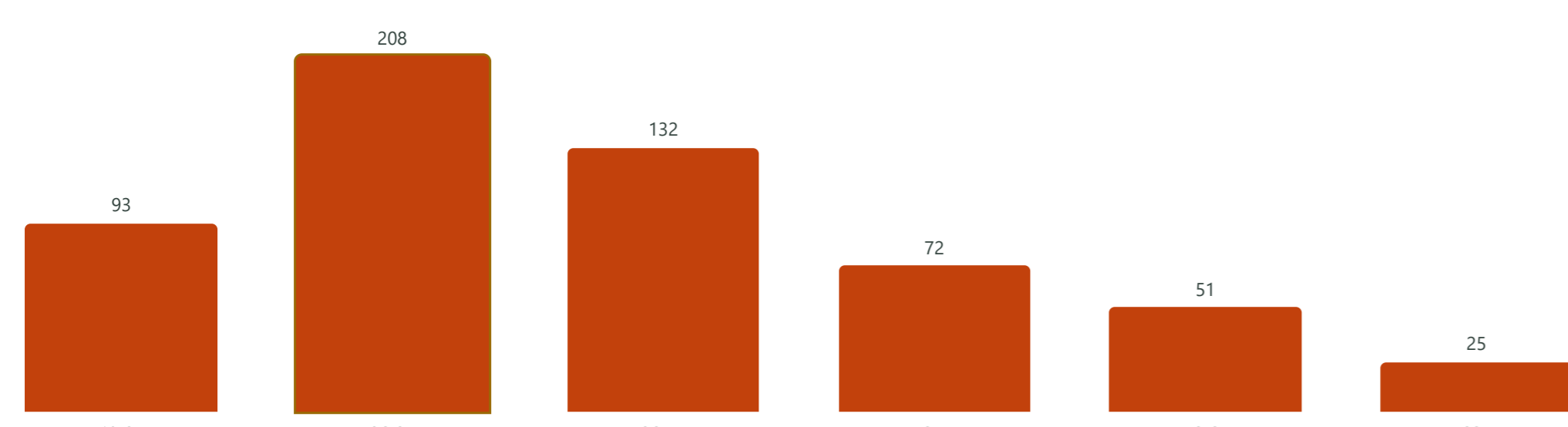
Treatment length

sessions per dyad · median 18 (IQR 10-24)



Client age distribution

consented clients · broad adult range



peak 26-35 · spanning 18 to 79

Three informants

same constructs, different eyes (dyads with data)



enables agreement & empathic-accuracy features

Who the clients are

consented analytic sample

37.9

mean age (SD 13.2)

59.6%

female

18-79

age range

a broad adult outpatient population

Returning clients

clients seen across multiple academic years

10

max years, one client

412

dyads with pre & post OQ-45

1.5

mean clients per therapist/yr

The measurement battery — 22 instruments, full names

informant (dot): client / therapist / therapist-on-client · items · consented N | right: how the battery feeds the model

SESSION

before / after every session

Instrument	Items	Consented N
ORS	Outcome Rating Scale	4 it 699
HSCL	Hopkins Symptom Checklist	11 it 699
WAI-6	Working Alliance Inventory	6 it 622
POMS	Profile of Mood States	12 it 621
SES	Session Evaluation Scale	1 it 409
Rupture	Rupture self-report item	1 it 622

The longitudinal core — repeated before/after every session, giving each client a dense within-treatment trajectory.

BASELINE

once per academic year

Instrument	Items	Consented N
OQ-45	Outcome Questionnaire-45	45 it 599
BDI	Beck Depression Inventory	21 it 598
IIP	Inventory of Interpersonal Problems	32 it 593
DERS-18	Difficulties in Emotion Regulation Scale	18 it 560
ERQ	Emotion Regulation Questionnaire	10 it 497
PID-5	Personality Inventory for DSM-5	25 it 347
SPIN	Social Phobia Inventory	17 it 448
SE	Rosenberg Self-Esteem Scale	10 it 449
SWLS	Satisfaction With Life Scale	5 it 326
SHEEHAN	Sheehan Disability Scale	3 it 189
IPDE	Int'l Personality Disorder Examination	77 it 143

THERAPIST

self-report

Instrument	Items	Consented N
WAI-6 (T)	Working Alliance Inventory (therapist)	6 it 600
IIP (T)	Inventory of Interpersonal Problems (therapist)	32 it 374
DERS (T)	Difficulties in Emotion Regulation (therapist)	18 it 328

The therapist's own interpersonal style & emotion regulation — the basis for therapist-effect predictors.

CROSS-RATER

therapist-on-client

Instrument	Items	Consented N
tc-ORS	Outcome Rating Scale (therapist-rated)	4 it 522
tc-POMS	Profile of Mood States (therapist-rated)	12 it 482

The therapist's view of the same client — enables client-therapist agreement & empathic-accuracy features, among the strongest known predictors.

FROM BATTERY TO FORECAST

22 instruments

3 informants · 11 years
129,894 questionnaire administrations



Tree-ensemble model

missing-tolerant · leave-one-year-out CV · honest emulation



6 personal forecasts

per client, by outcome domain — plus a deterioration flag

HOW WE WILL ANSWER IT

a two-phase machine-learning program · questionnaires only · figures are illustrative (no results yet)

Phase 1 · Benchmark

At session 3-5, baseline + early sessions forecast each client's outcome, and we establish how accurately it can be done.

Phase 2 · Personalize

Trajectory-predicts-trajectory, data-driven profiles, SHAP explanations, deterioration flags, and per-client predicted gains via interactions.

What the model outputs: a per-domain forecast from the first sessions

ILLUSTRATIVE (no results yet) · observed = solid teal, predicted = dashed blue + uncertainty band

