KINTSUGI

POPULATION HEALTH COLLOQUIUM

Unlocking AI to Improve Access to Mental Healthcare

WEDNESDAY, SEPTEMBER 20TH, 8:45 - 9:10 AM

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Agenda

Mental health landscape
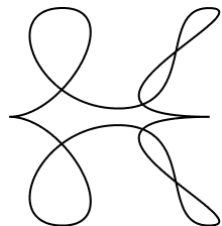
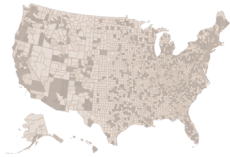AI-powered voice biomarker category

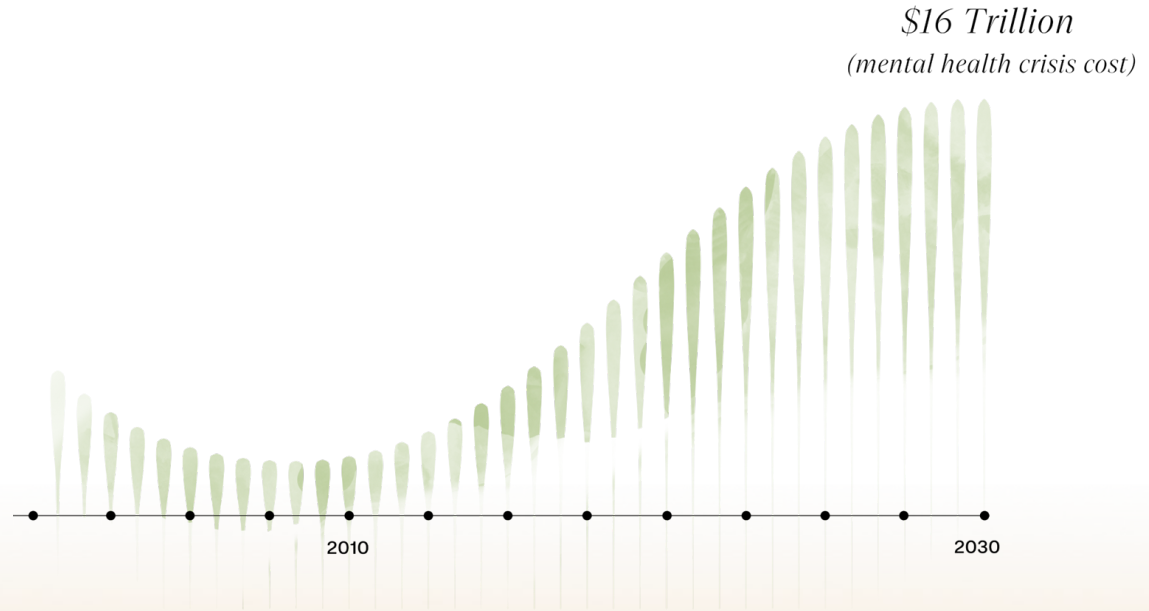Opportunities and risks

Q&A

The mental health care crisis and associated costs continue to grow, as depression rates rise and therapist resources dwindle

29%

Of adults have depression in the U.S., **+52%** vs. 2015

>50% of U.S. counties lack a single psychiatrist

$16 Trillion
(mental health crisis cost)

2010

2030

https://news.gallup.com/poll/505745/depression-rates-reach-new-highs.aspx
https://www.reuters.com/article/us-health-mental-global/mental-health-crisis-could-cost-the-world-16-trillion-by-2030-idUSKCN1MJ2QN

Mental health still lacks biomarkers—or measurable indicators of disease—making identification, stratification and care difficult

01
Identification

Less than 4% of Primary Care visits screen for depression.

Of the correctly detected mental health cases, only 33% are noted down.

02
Stratification

The most prevalent screening method for depression (PHQ2) is binary.

Without stratification, there is no prioritization or tailoring of care based on severity.

03
Access to Care

~60% of people never receive a diagnosis or treatment.

Everyone is stuck at the front door and unable to access timely care.

These identification and access to care challenges are compounded even further amongst underprivileged populations

Sonar Strategies | Kintsugi

Depression Stratification in Population (65 years old)

OVERALL DEPRESSION

2%
0.5%
22%
8%
54.8%

- None
- Mild
- Moderate
- Moderate to severe
- Severe

Total Depressed

32%
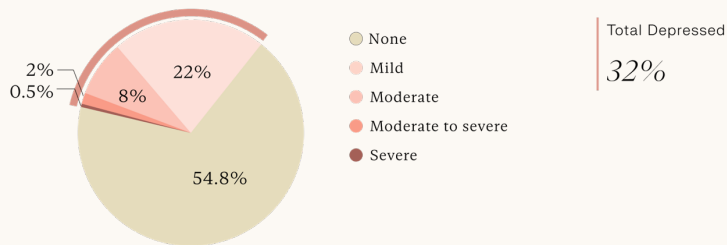
- Black patients are half as likely to be screened as white patients

- Retired adults are half as likely to be screened as their working-age counterparts

- 1 out of 3 chronically ill patients suffer from depression yet go untreated; this is likely under-stated
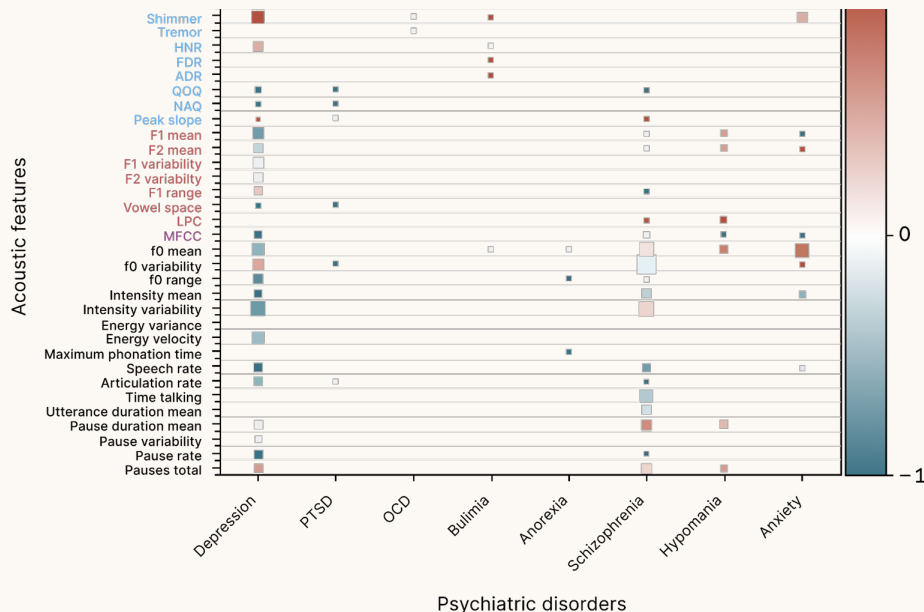
AI-powered voice biomarker solutions enable non-invasive and accurate mental health screenings at scale

Scientific papers dating back to the 1970s describe the subtle vocal indicators of mental health conditions.

Many of these cues can be so subtle—at a millisecond level—that the sounds are beyond human comprehension.

AI can be trained to pick up on these subtle cues, mathematically pattern them and correlate to various psychiatric diseases.

Clinical studies prove efficacy of AI in mental health screenings

Conducted with Intuity and presented at the ATA 2023 Annual Conference. Males and females > 17 years old provided 45 second voice sample. Model learning correlated to PHQ -9.

Kintsugi Voice identified those with severe depression* accurately **91%** of the time.

(95% CI: 0.88 -- 0.95)   *(PHQ9 > 19)

Model training | n = 1305 (80%)
Model validation | n =   340 (20%)

AI voice biomarker tools have the power to transform the mental health landscape with countless benefits

BENEFITS

OBJECTIVE
Assists clinicians with picking up the subtle cues of voice to quantity conditions.

NON-INVASIVE
Embeds into existing clinical workflows and works off free form speech

FAST
Predicts results in under one minute.

REDUCES BIAS
Language agnostic, scores based on *how* you speak, not *what* you say.

STRATIFICATION
Predicts severity of conditions (Low, Moderate, Severe).

CONNECT TO CARE
More precise triaging prioritizes most severe patients for care.

QUALITY METRICS
Identify and track mental health score over time.

OUTCOMES
Boost patient outcomes and profitability for healthcare organizations.

However, with great power comes great responsibility

FURTHER VALIDATION

- While results are promising, more clinical and regulatory work is needed

- There are limited objective screening tools to compare against

- Requires tremendous amount of data

INPUTS = OUTPUTS

- Models are only as effective as the data that is input and analyzed

- Health data can have structural racism built into the codes

- High quality and quantity of voice data is required to produce consistent and accurate results
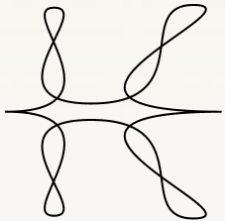
PATIENT PRIVACY

- Patient data must be protected and kept confidential

- Patient consent must be embedded into processes
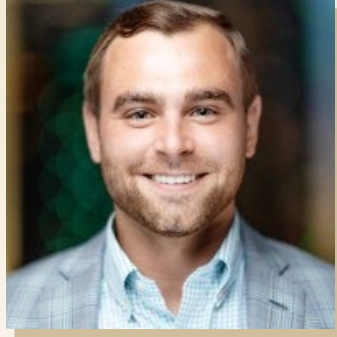
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Thank you