AI for social anxiety disorder diagnosis

Results and reflections from a scoping review

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Social anxiety

Often under-recognized despite substantial impact on a person's functioning

In one clinical sample: 14 years median time from onset to first treatment

Traditional identification:
interviews & self-report questionnaires

Chapdelaine et al. (2018); Ertekin et al. (2015)

The promise of AI

AI has the promise to offer added value

- detect patterns in diverse data sources to support earlier identification
- help target limited clinical resources more effectively

By leveraging existing as well as underused data sources

- Questionnaires
- Spoken language
- Online behaviour
- Eye-tracking
- VR-interaction

Sarker (2021)

Method

Scoping review

- OSF-preregistered
- Psychological and behavioral AI approaches with binary SAD or social-anxiety screening outcomes
- Published up to 2025 – none earlier than 2020!

385 records imported → **203** screened → **46** full texts → **17** included studies

https://osf.io/by95s/overview

Condensed results and discussion

Samples

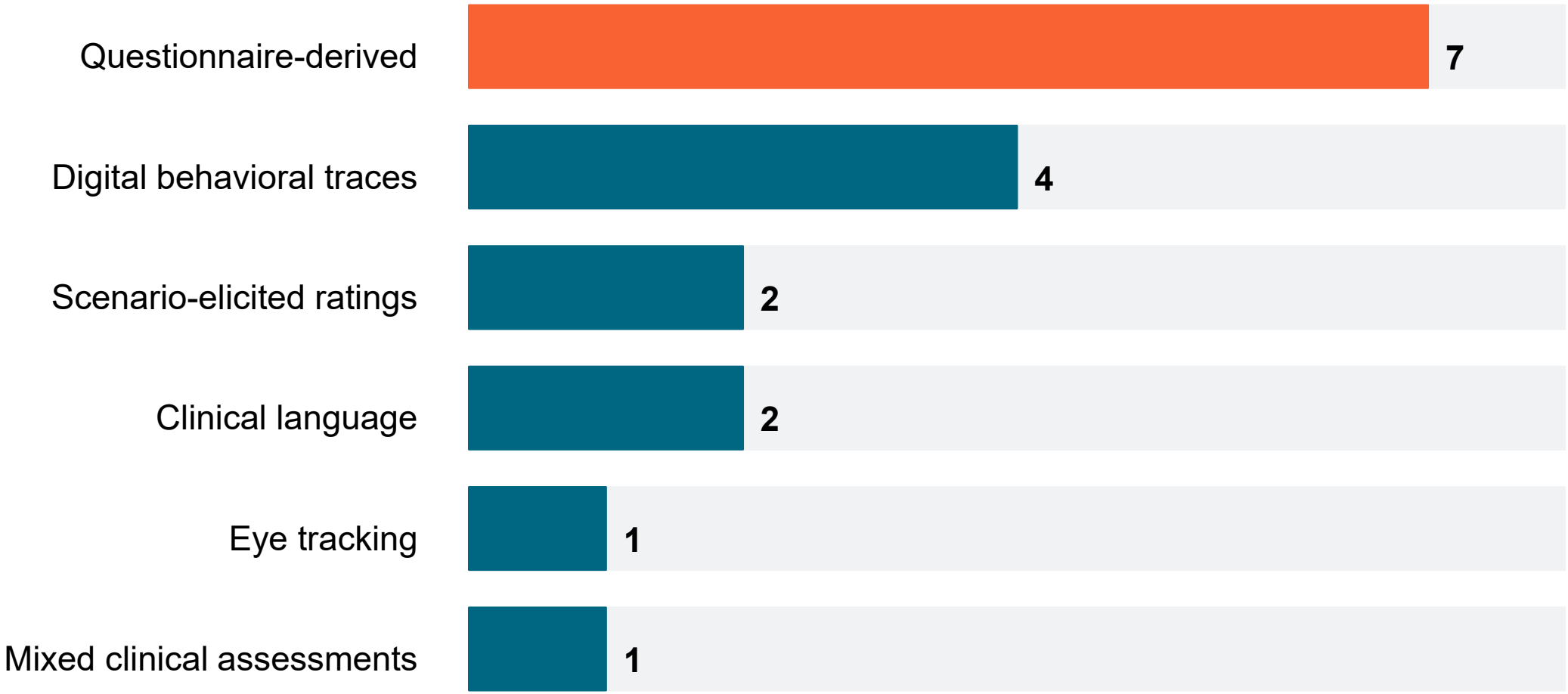
Extreme variety in sample sizes and populations

- Small lab-based studies, medium-sized (clinical) datasets ,
  even a large MMOG dataset
- One online survey with participants from Teheran used across 4 different studies

Most models not evaluated against an independently established diagnosis, but relying on questionnaire cut-offs (N = 9)

https://lp.pigg-party.com/

Data types


Questionnaire-derived
7
Digital behavioral traces
4
Scenario-elicited ratings
2
Clinical language
2
Eye tracking
1
Mixed clinical assessments
1

AI approaches used

'Traditional' **supervised machine-learning** (N = 10) vs **deep learning** (N= 7)

ML: relatively small and structured datasets

- 'AI' as alternative scoring layer over conventional screening input, may have limited incremental benefit
- High performance = optimized reproduction of questionnaire cut-offs, not improved identification of clinically meaningful SAD in real practice.

DL: unstructured complex data

- Help to extend beyond traditional assessment relying on retrospective self-report

Performance

Heterogeneous metrics across studies

- Validation mostly internal,
  relying on subsets of the same dataset
- Currently impossible to conclude which AI model or input modality combination performs best for across contexts
- Evidence currently supports feasibility (only) under study-specific conditions

Clinical implications

Future AI implementation **could complement** clinical interviews and questionnaires, also beyond SAD

Clear need for better **case definition, reference standards and validation design.**

Similary, improving **reporting transparency, reproducibility and ethical governance** will prove key as well.

How to assure adequate future therapist-in-the loop?





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