

The Future of Artificial Intelligence (AI) in Psychiatry

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What is Artificial Intelligence?

- “The science and engineering of creating intelligent machines¹”
-John McCarthy (Artificial Intelligence founder)
- Use of technology to mimic intelligent behavior and thought⁵
- Enables machines to learn and recognize patterns and relationships from large representative examples



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How is this relevant to psychiatry?

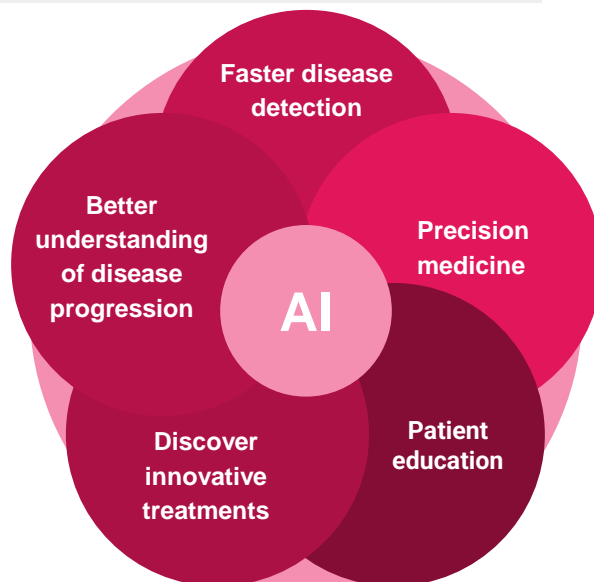
- **The world is in a mental health crisis**
 - Psychiatric disorders = 4.9% of global disease burden
 - Patients: increased physical morbidity and premature mortality
- Large disease burden → need for:
 - Accurate diagnosis at early stage
 - Personalized treatment
- Potential solution?
 - ↳ AI (even though still controversial)



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Artificial Intelligence in Medicine



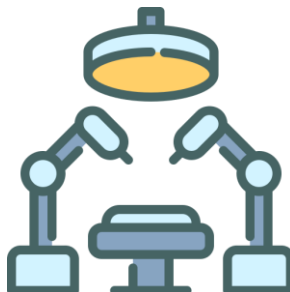
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What other specialties have used AI?



Orthopedics
(i.e. answering patient questions⁶)



Surgery
(i.e. Da Vinci robot)

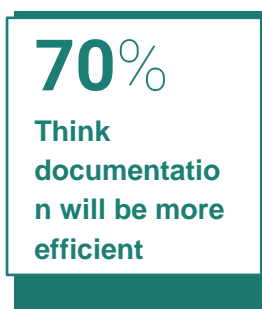


Cardiology
(i.e. EKG analysis)

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Opinions on AI in Psychiatry

AI in Psychiatry APA webinar - August 2023
- With survey after webinar - n = 138



Pros: Strengthen patient safety, access, and quality of care
Cons: Fabrication of info, embedded bias

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AI in Psychiatry

General term that implies the use of computerized techniques and algorithms for the diagnosis, prevention, and treatment of mental illnesses ⁴

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What are potential roles of AI in Psychiatry?



Biomarker identification ²



Monitoring symptoms

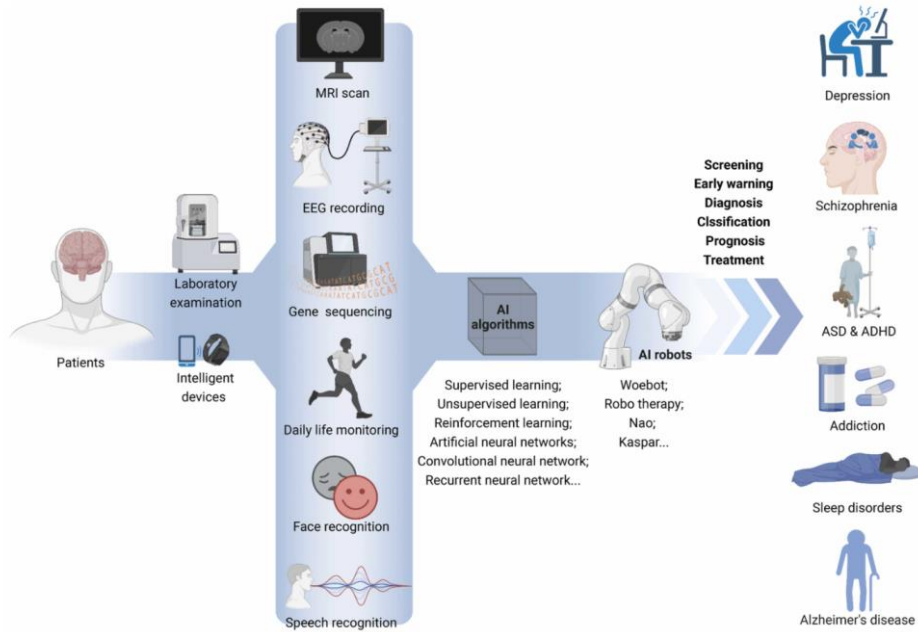


Screening tools



Risk Models

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Sun et al., 2023

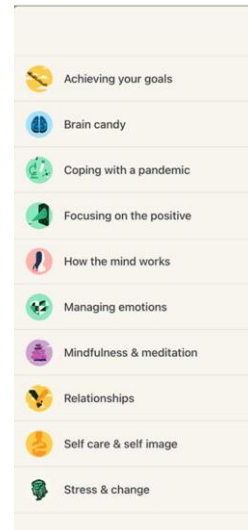
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Example of AI-based Interventions in Psychiatry

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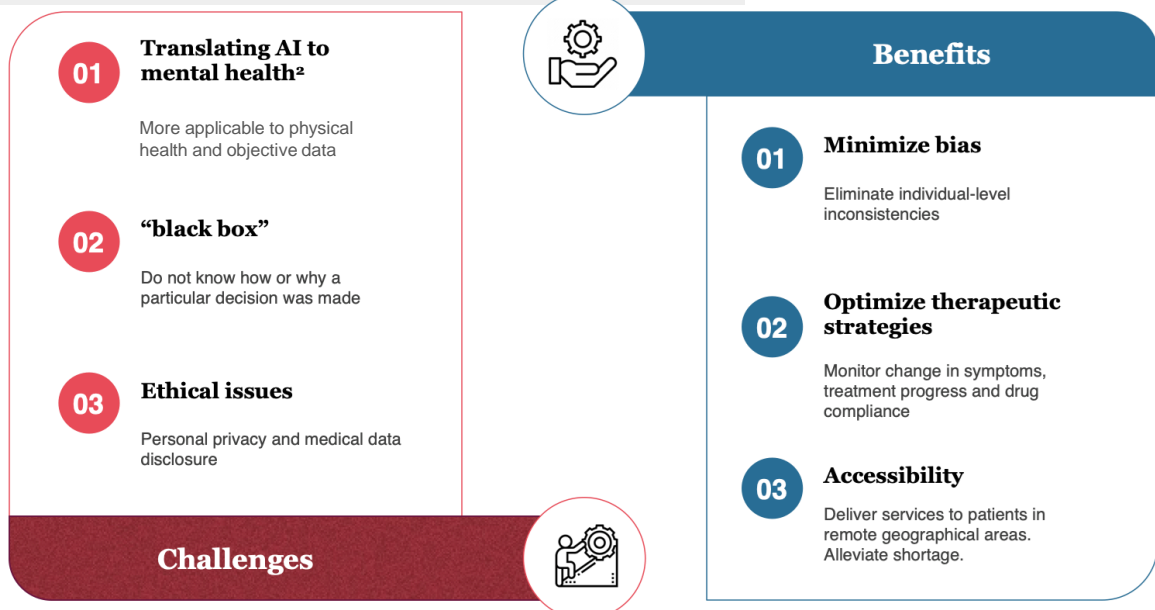
Example of AI-based Interventions in Psychiatry

- How do you **access** to the application?
- How does it **work**?
 - Select category → Learning modules → tools
- What happens if someone is in a **crisis**?
 - programmed to recognize suicidal language
- How is this **regulated**?



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Potential benefits? Challenges?



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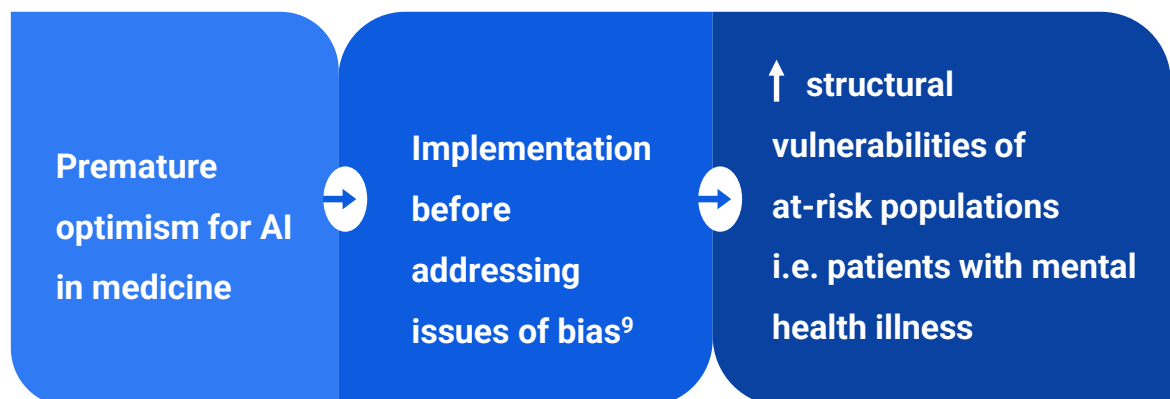
Ethical Considerations

Epistemic injustice

- “Harm done to individuals or groups regarding their ability to **contribute to** and **benefit from** knowledge”⁷
- Technological Redlining⁸
 - Unrepresentative or incomplete data for training
 - Algorithmic bias → reinforced racism
 - ↳ biased algorithms / treatment pathways
 - ↳ widened inequities in access & quality of care

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Ethical Considerations



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Ethical Considerations

AI can synthesize massive amounts of data in a second

↳ Feeling obligated to agree with AI's clinical recommendations⁷

What if clinicians go against the recommendations?

↳ Concern for liability?

↳ Which is superior - clinician judgment or AI output?



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How can we do this well?



Critical **reflection**- limitations of AI systems and clinicians³



Epistemic **humility**



Individual experiences, values, and preferences > AI



Caution- address the potential for unintended consequences

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References

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