

# Researching Health Information Behaviors: Landscape, AI's Role and Its Impact



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# Outline

**Wonchan:** Generative AI Literacy Framework

**Xinchen:** Large-scale Behavioral Annotation in HIB

**Yan:** Users' Experience with AI-enabled Chatbots

**Annie:** AI Information Interactions among Chinese Older Adults

**Discussions**

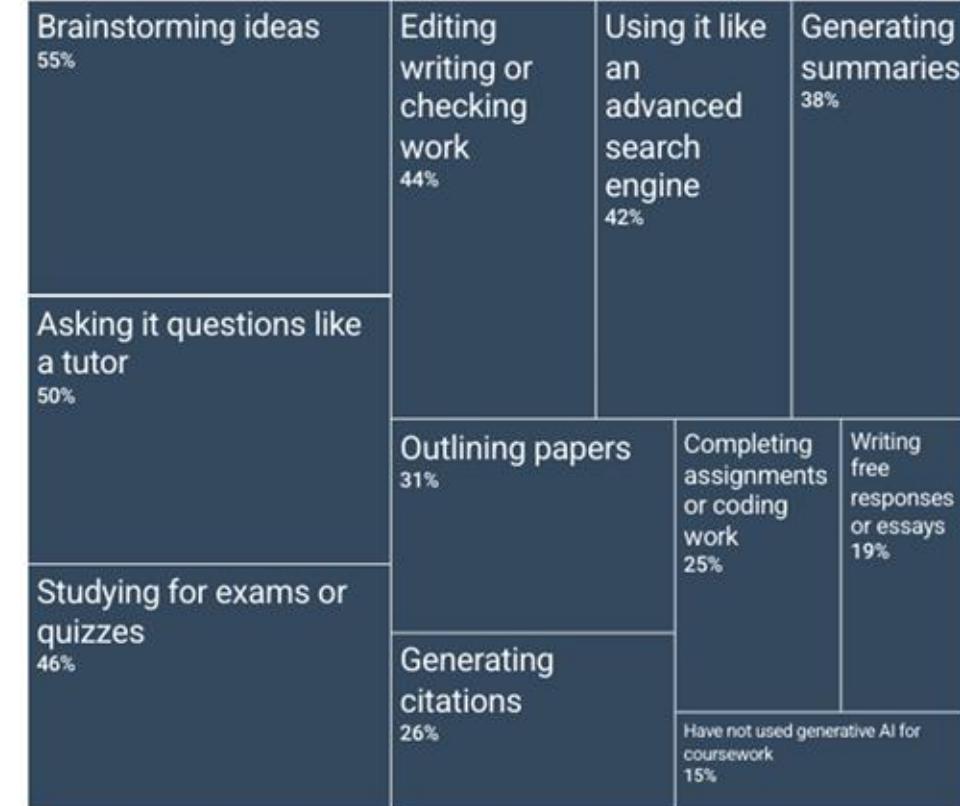
# Generative AI Literacy Framework

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Wonchan Choi  
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University of Wisconsin-Milwaukee  
School of Information Studies

# GenAI in Higher Ed

- **Wide adoption** – 85% of U.S. students reported using GenAI for coursework (Inside Higher Ed, 2025).
- GenAI failures (Borji, 2023)
  - Factual errors
  - Bias



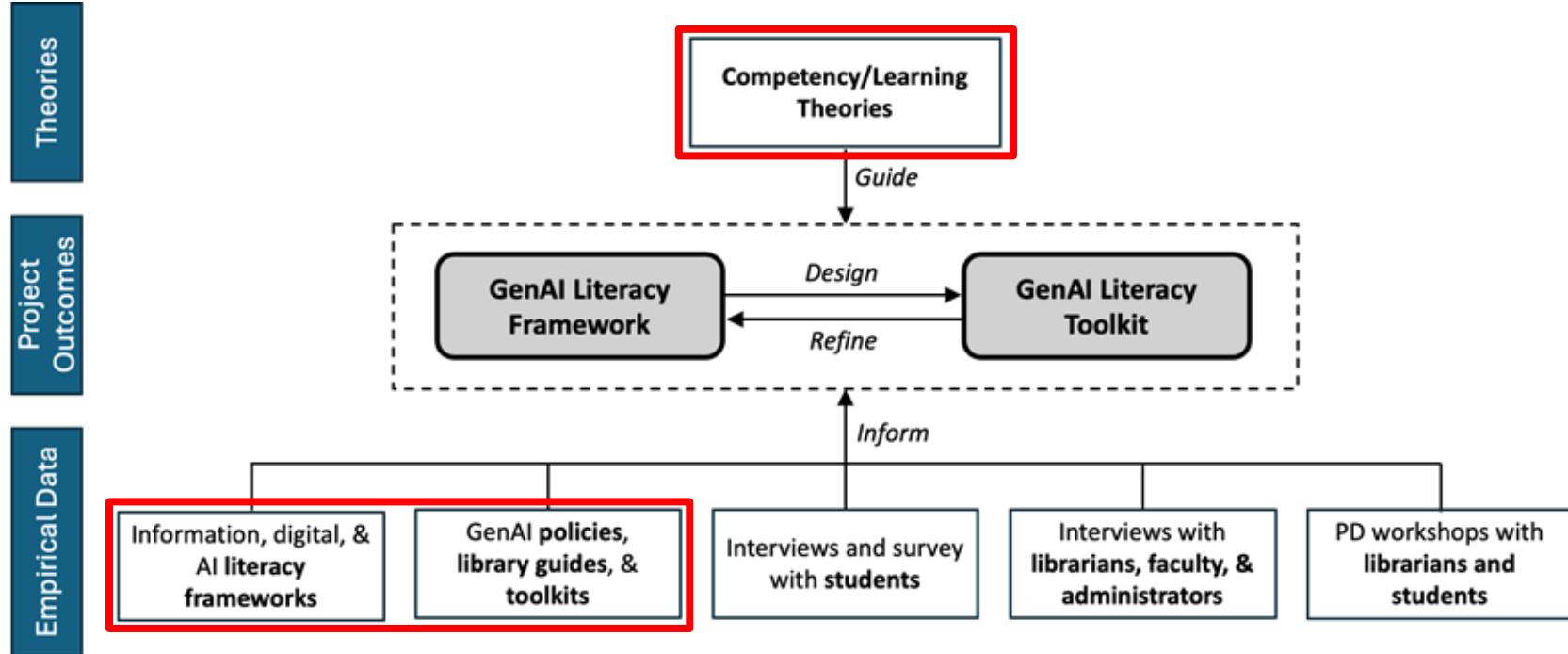
# Support Expected

- Offer training on how to use AI tools professionally and ethically
- Provide clearer institutional guidance on ethical use vs. misuse of AI tools
- Create space for open discussion about AI's risks and potential
- Include AI skills in relevant majors and career preparation pathways
- Require a course or module on AI literacy (e.g., what AI is, how it works, ethical use)

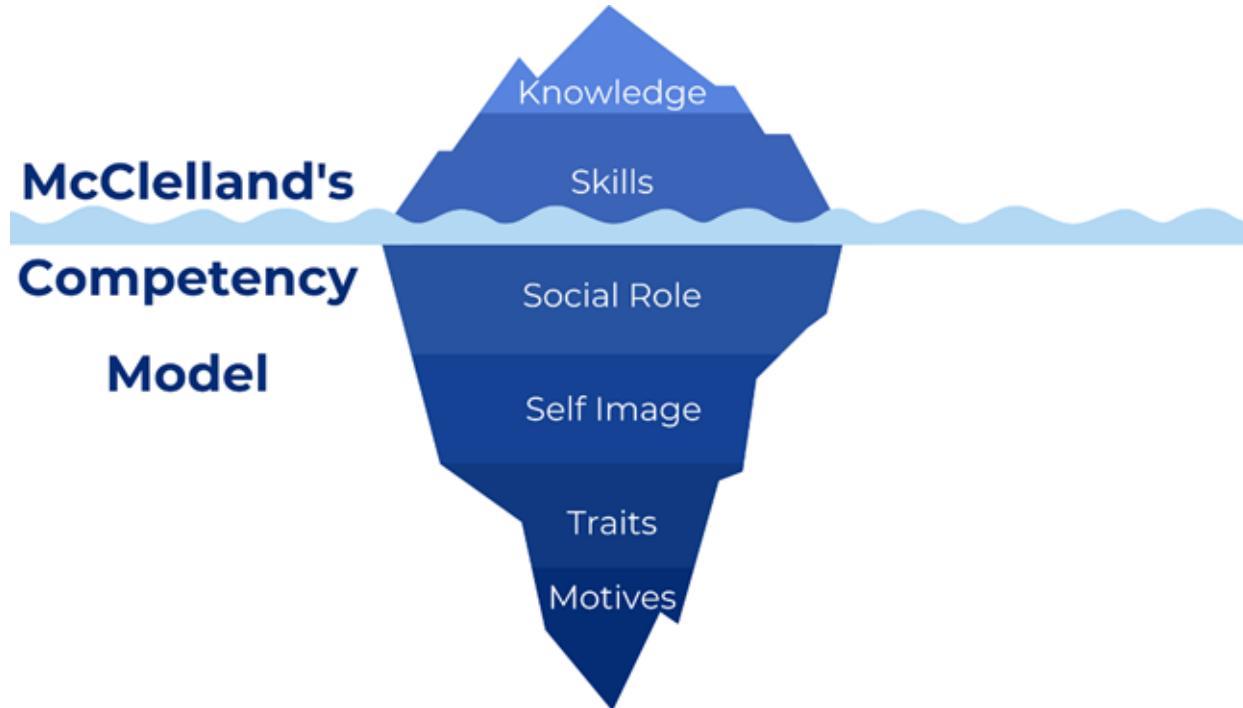


Inside Higher Ed. (2025). [How AI Is Changing—Not 'Killing'—College](#).

# Project: Developing a GenAI Literacy Framework and a Tool Kit for Higher Education



# Iceberg Model of Competency (Spencer & Spencer, 1993)



Experianta. (n.d.). [McClelland's theory of competencies at work \(the competency model\)](#).

# GenAI Competency Components

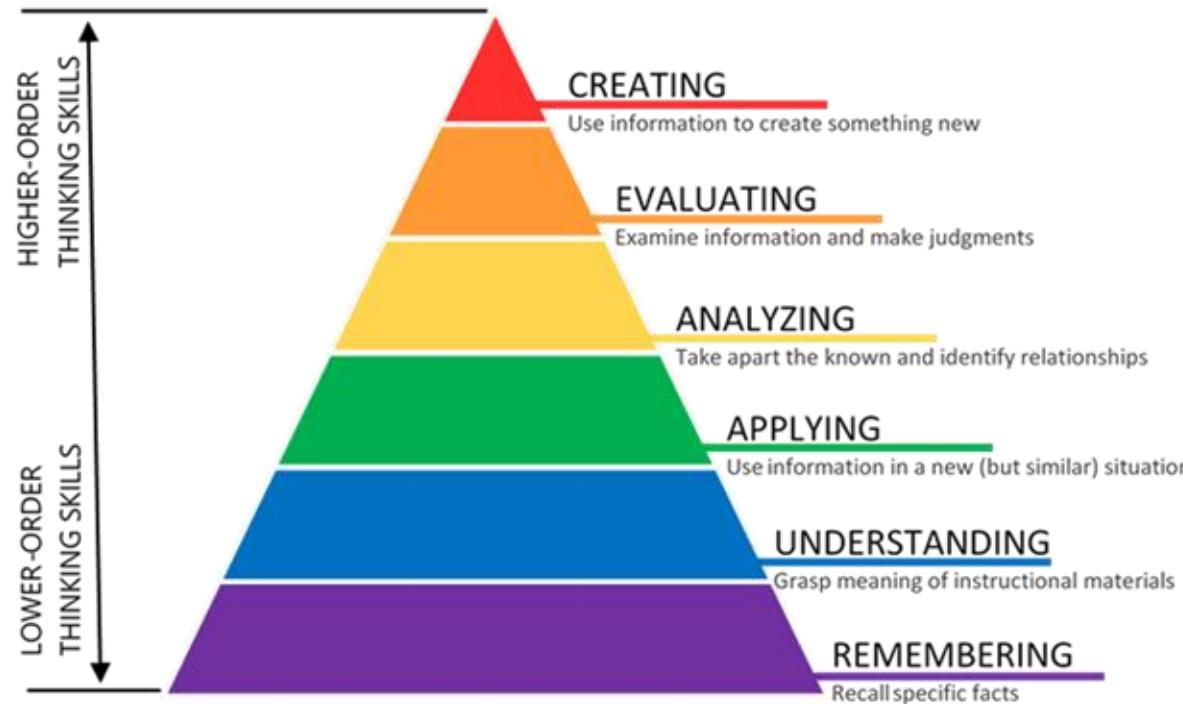
*Easier to observe and improve*

*Harder to observe and improve*



Knowledge (K)	Skills (S)	Self-Concept (A)
The information and understanding an individual has acquired, which is necessary for performing tasks effectively	The ability to perform specific physical and cognitive tasks with proficiency	An individual's values, <b>attitudes</b> , or perception of themselves (i.e., self-image) that influence how they respond or react to a given situation or problem

# Bloom's Taxonomy (Krathwohl, 2002)



# GenAI Competency Development Processes

*Lower order*

*Higher order*



1. Understand	2. Apply	3. Analyze & Evaluate	4. Create
Develop both conceptual and technical understanding of GenAI and how these systems work, including their capabilities and inherent limitations	Use GenAI tools purposefully, effectively, and contextually appropriately across academic tasks	Assess GenAI tools regarding their technical and broader societal, ethical, and legal implications, such as bias, accountability, autonomy, privacy, and intellectual property	Adapt or customize GenAI tools to meet specific needs but also propose novel applications or theoretical insights

# GenAI Literacy Framework (Work-in-Progress)

Progression	Competency	Knowledge	Skills	Attitudes
4. Create	4.2 Ideate and theorize novel applications of GenAI			
	4.1 Customize or develop GenAI tools			
3. Analyze & Evaluate	3.3 Justify or critique the use of GenAI tools	X		X
	3.2 Evaluate the societal, ethical, and legal implications of using GenAI tools	X		X
	3.1 Assess the appropriateness of GenAI models and tools	X		
2. Apply	2.2 Document and acknowledge the use of GenAI			
	2.1 Apply task-appropriate GenAI tools	X	X	X
1. Understand	1.3 Understand the current and future capabilities and limitations of GenAI	X	X	X
	1.2 Understand the technical foundations of GenAI	X	X	X
	1.1 Develop a conceptual understanding of GenAI and recognize GenAI systems	X	X	X

# GenAI Literacy Framework (Work-in-Progress)

**K:** Understands the limitations of AI algorithms and its cultural biases based on training data

**S:** Experiments with GenAI tools for information retrieval methods

**A:** Demonstrates appropriate skepticism about how misaligned AI outputs can constrain, rather than enhance, users' creativity

		Knowledge	Skills	Attitudes
GenAI				
Applications of GenAI	X			X
Task-appropriate tools	X			X
GenAI in society	X			
2.1 Apply task-appropriate GenAI tools	X	X	X	
1.3 Understand the current and future capabilities and limitations of GenAI	X	X	X	
1.2 Understand the technical foundations of GenAI	X	X	X	
1.1 Develop a conceptual understanding of GenAI and recognize GenAI systems	X	X	X	

# GenAI Literacy Framework (Work-in-Progress)

**K:** Knows major types of GenAI tools and their common features and constraints (e.g., LLMs, image generators)

**S:** Develops prompts to get desired results (e.g., cross-cultural images using DALLE)

**A:** Recognizes the value of using GenAI strategically by employing iterative prompt-building techniques to improve alignment and output quality

		Knowledge	Skills	Attitudes
GenAI				
Applications of GenAI		X		X
Technical Foundations of GenAI	X			X
Models and Tools	X			
2. Apply	2.2 Document and acknowledge the use of GenAI			
	2.1 Apply task-appropriate GenAI tools	X	X	X
1. Understand	1.3 Understand the current and future capabilities and limitations of GenAI	X	X	X
	1.2 Understand the technical foundations of GenAI	X	X	X
	1.1 Develop a conceptual understanding of GenAI and recognize GenAI systems	X	X	X

## Future Directions

- Complete SLR and policy analysis.
- Collect data from students and other stakeholders in higher education.
- Refine the framework.
- Develop a toolkit.

# Thanks to My Team Members

- **Yan Zhang**, Professor, iSchool @ UT-Austin
- **Besiki Stvilia**, Professor, iSchool @ FSU
- **Hyerin Bak**, Teaching Faculty, iSchool @ UWM
- **Emmanuel Onaivi**, PhD student, iSchool @ UWM
- **Opeyemi Rachael Oboh**, PhD student, iSchool @ UWM
- **Joyce Lee**, Master student (MLIS), iSchool @ UWM



# Large-scale Behavioral Annotation in Health Information Research: From Traditional Methods to LLM-Human Collaboration

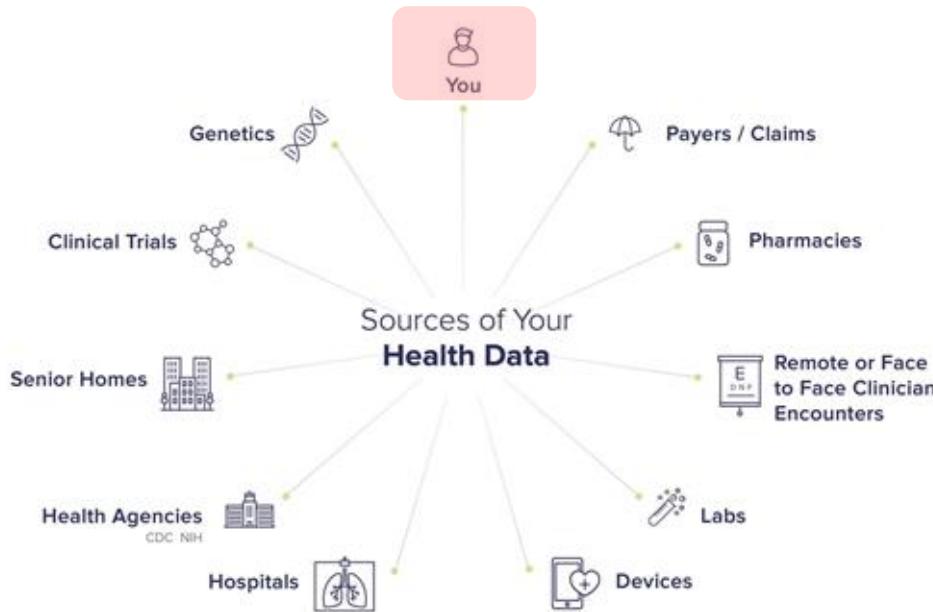
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Xinchen Yu, Ph.D.  
Assistant Professor of Practice  
Department of Computer Science  
University of Arizona

# Background



# Background



**Source:** Online health forums (Reddit r/depression)

**Behaviors:** seeking advice, information, validation, emotional support, providing support...

# Background



**Source:** primary care appointments, specialist consultations

**Behaviors:** asking treatment, expressing preferences, negotiating, disclosing barriers to treatment...

# Background



**Source:** health chatbots

**Behaviors:** asking questions, describing symptoms, disclosing concerns, diagnosis, requesting referrals to human providers...



# Motivation

- **Design effective peer support:**
  - Peer responses types → positive outcomes?
- **Improve patient-provider communication:**
  - Communication style → degree to which patients disclose treatment barriers?
- **Map trust boundaries:**
  - Questions types → ask referral for human provider?

**Source:** Online health forums (Reddit r/depression)

**Behaviors:** seeking advice, information, validation, emotional support, providing support...

**Source:** primary care appointments, specialist consultations

**Behaviors:** asking treatment, expressing preferences, negotiating, disclosing barriers to treatment...

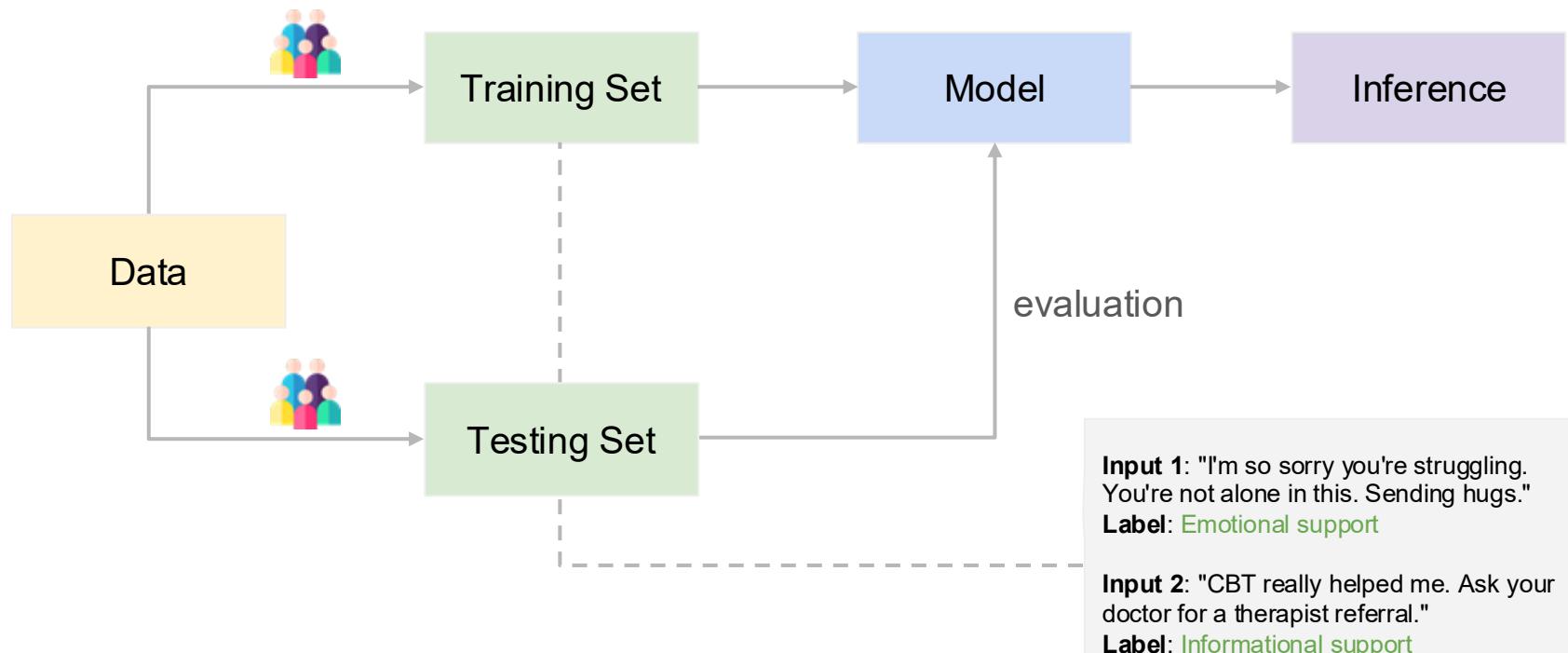
**Source:** health chatbots

**Behaviors:** asking questions, describing symptoms, disclosing concerns, diagnosis, requesting referrals to human providers...

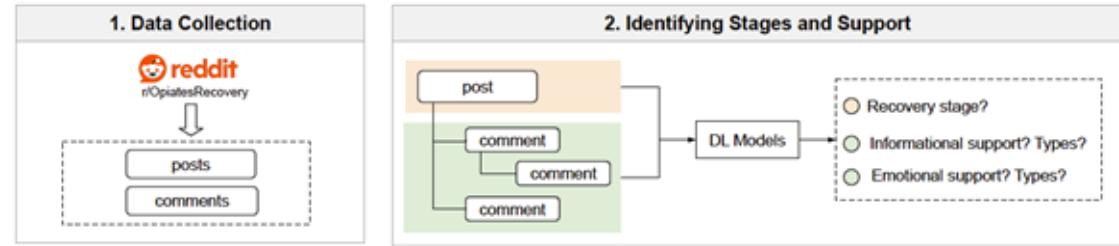
Manual annotation can't scale.

We need **scalable** behavioral annotation.

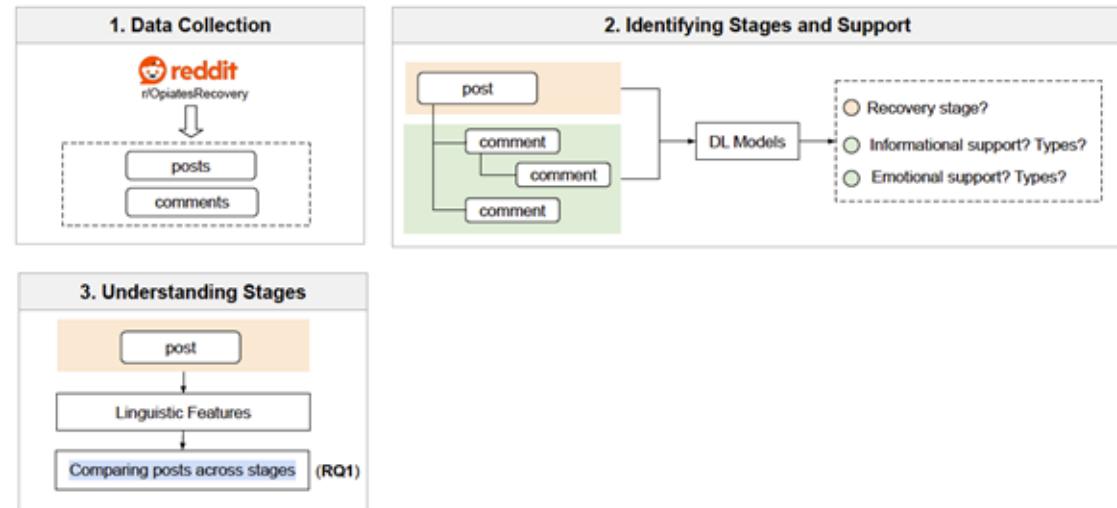
# A general pipeline



# Case study: Pinpointing recovery stages in opiate use

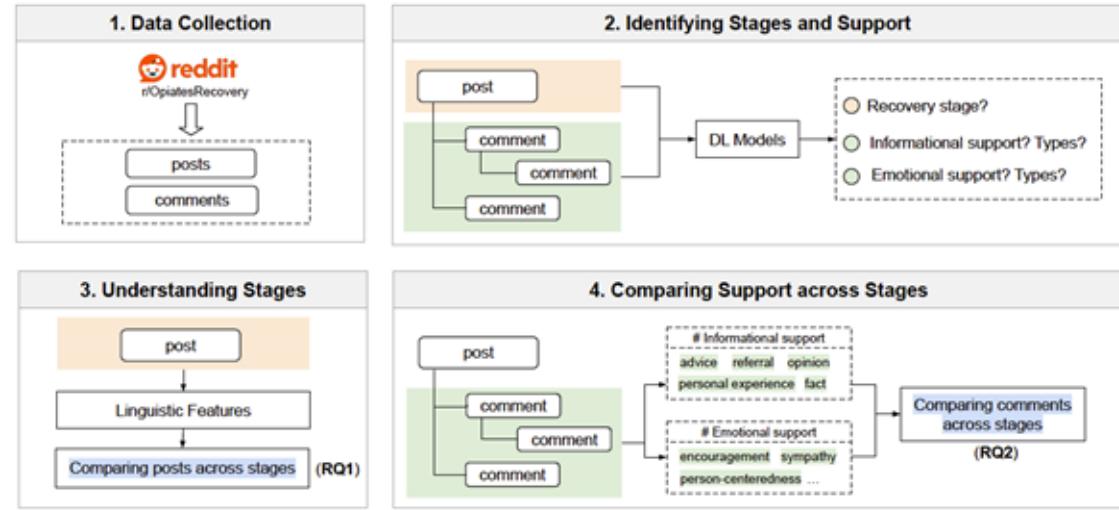


# Case study: Pinpointing recovery stages in opiate use



**RQ1:** Do posts at different recovery stages use the same language?

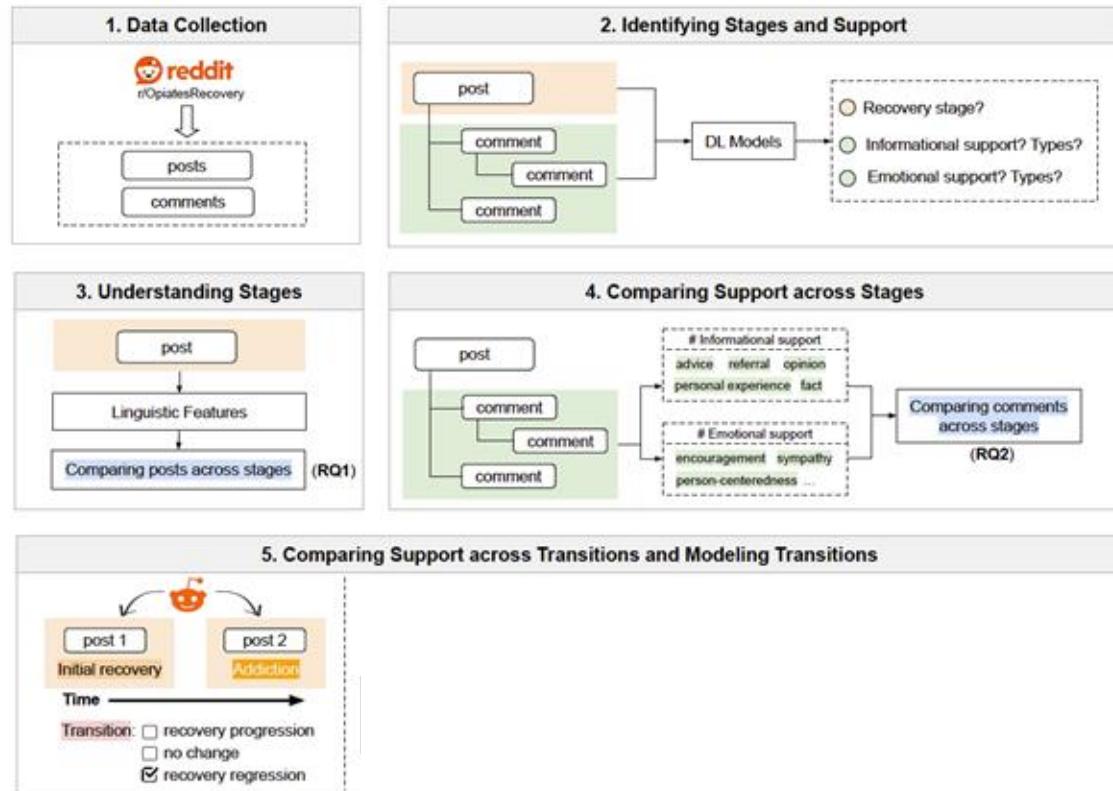
# Case study: Pinpointing recovery stages in opiate use



**RQ2:** How does the type of social support received in response to posts vary across different stages of recovery?

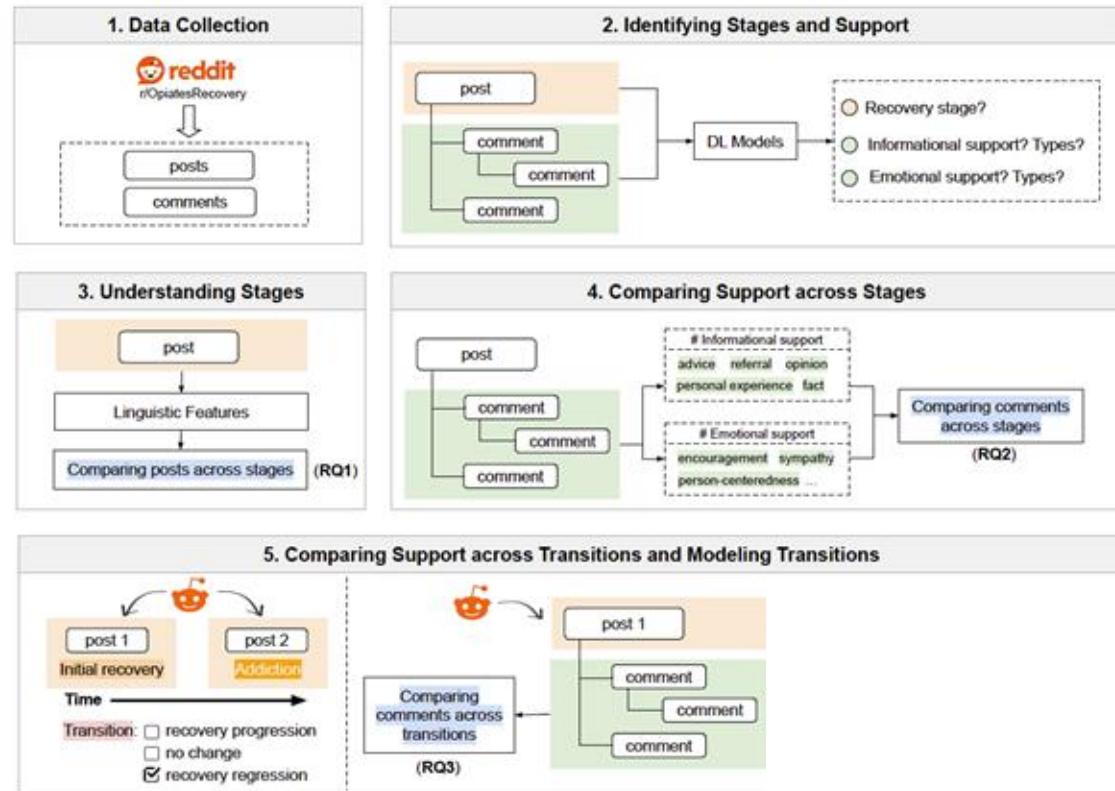
# Case study: Pinpointing recovery stages in opiate use

**RQ3:** How are social support comments on a post associated with recovery stage transitions?



# Case study: Pinpointing recovery stages in opiate use

**RQ3:** How are social support comments on a post associated with recovery stage transitions?



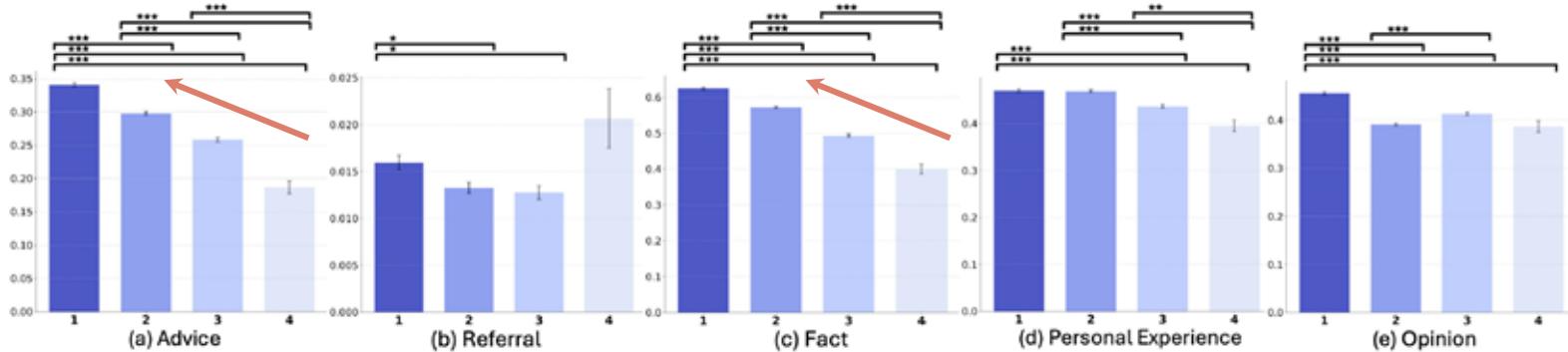
# Language differences between different recovery stages

	1 vs 2	1 vs 3	1 vs 4	2 vs 3	2 vs 4	3 vs 4
Tokens	↑↑↑	↑↑↑	↑↑↑	↑↑↑		
2nd person pronouns	↑↑↑	↓↓↓	↓↓↓	↓↓↓	↓↓↓	↓↓↓
Joyful words	↓↓↓	↑↑↑	↓↓↓	↓↓↓	↓↓↓	↓↓
Positive words	↓↓↓	↓↓↓	↓↓↓	↓↓↓	↓↓↓	↓↓↓
Negative words	↑↑↑	↑↑↑	↑↑↑	↑↑	↑↑↑	↑↑↑
Trustful words		↓↓↓	↓↓↓	↓↓↓	↓↓↓	↓
Dominant words	↓↓↓	↓↓↓	↓↓↓	↓↓↓	↓↓↓	↓↓↓
Painful words	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑	
Needful words	↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑	
Anxious words	↓↓↓	↑↑↑	↑↑↑		↑↑	↑↑
Fearful words	↑↑↑	↑↑↑	↑↑↑			
Hopeful words		↓↓	↓↓		↓↓	↓
Hostile words		↑↑↑	↑↑		↑	
Passive words	↑↑↑	↑↑↑	↑↑↑		↑	

## Recovery stages:

- 1: addiction
- 2: initial recovery
- 3: sustained recovery
- 4: stable recovery

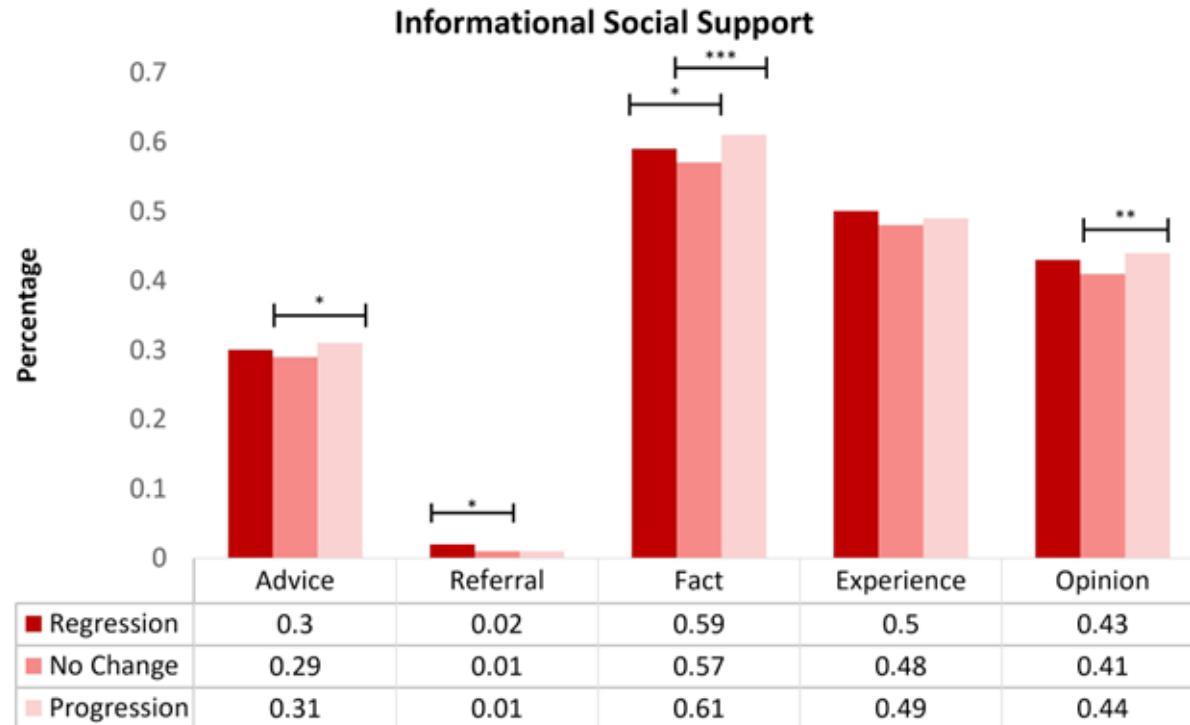
# Differences in informational support



## Recovery stages:

- 1: addiction
- 2: initial recovery
- 3: sustained recovery
- 4: stable recovery

# Differences in social support across stage transitions



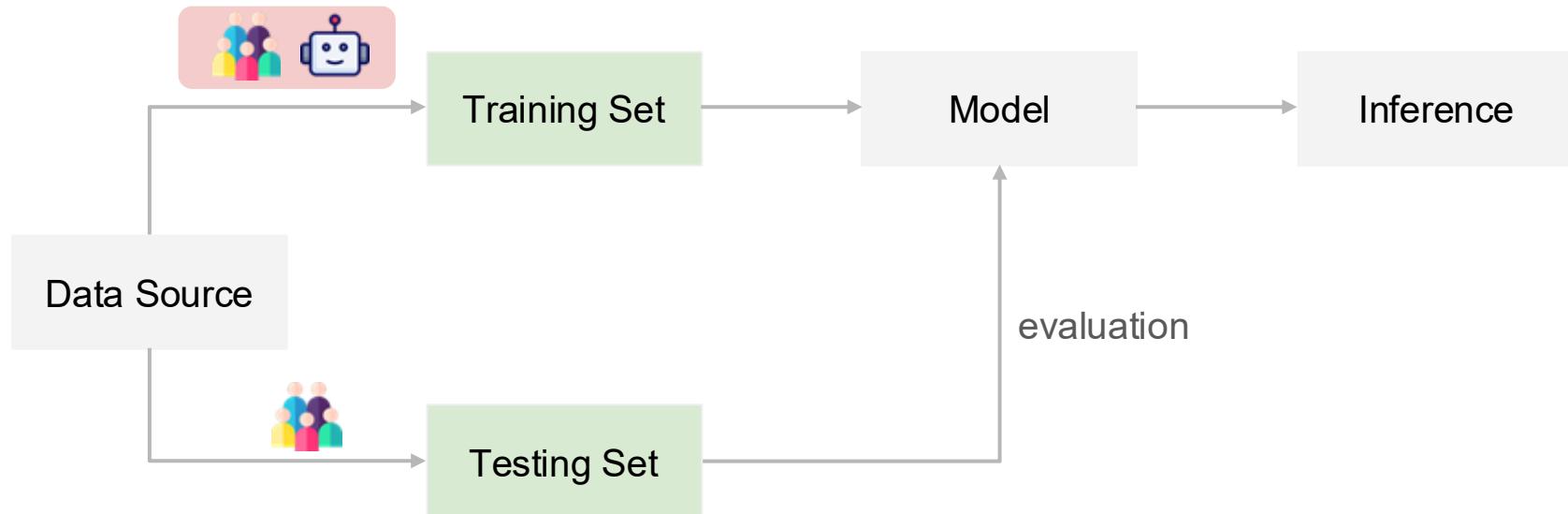
# Human-AI collaboration for annotation



costly



subhuman-level performance

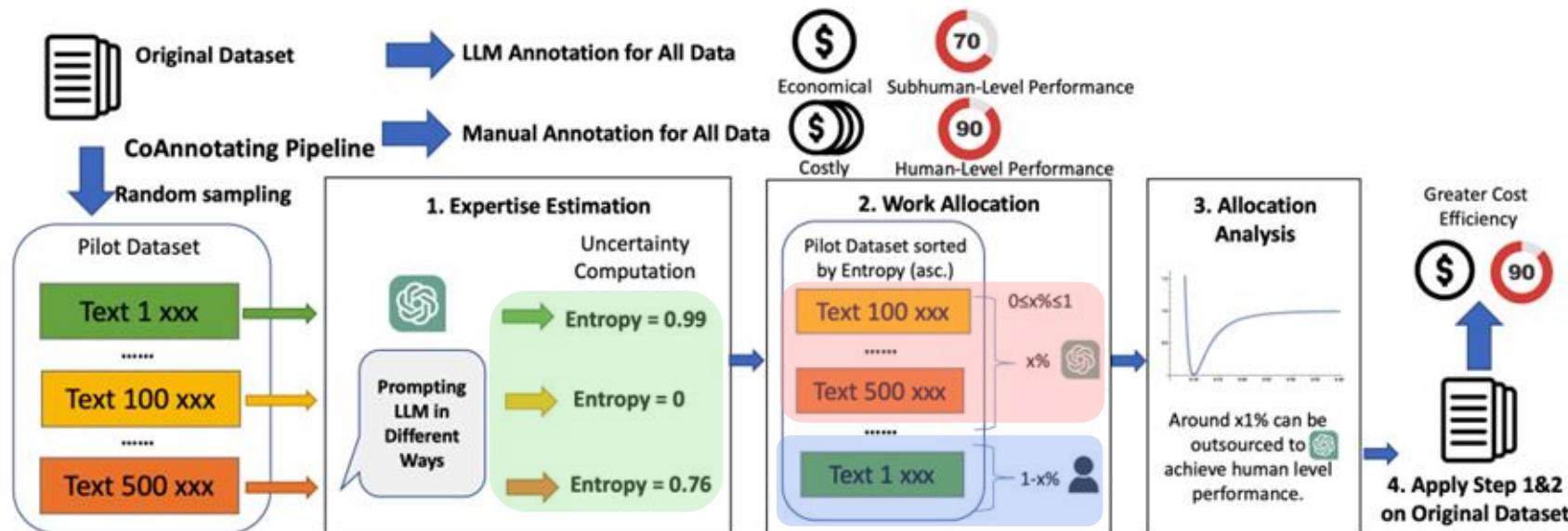




# Key takeaways

- **Language:** Individuals in early recovery use significantly more negative, painful, and passive language than those in later stages.
- **Support received in early recovery:** Early-stage individuals receive significantly more informational support (facts) but less emotional support.
- **Support and recovery progression:** Users who move forward in their recovery receive more informational support (facts and advice) compared to those whose stage remains unchanged.

# Co-Annotating





## Thanks to my collaborators:

- Yu Chi, Ph.D., San Jose State University
- Huaiyu Chen, Ph.D., University of Kentucky

**“Not everything is helpful, but it's definitely better than dealing with things alone”**

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**Users' Experience with AI-enabled Chatbots on Mental Health Apps**

**YAN ZHANG**

PhD, Professor

School of Information, The University of Texas at Austin

# Mental health crisis and AI-enabled chatbots

- In 2022, 23.1% of adults aged 18 or older (estimated 59.3 million) lived with a mental illness (Substance Abuse and Mental Health Services Administration, 2022).
- Lack of therapeutic resources, stigmatization.
- Preference for self-reliance, difficulty identifying or expressing concerns, financial resources.



Generative A.I. technologies “hold significant promise” for addressing mental health crises (Metz, 2025).

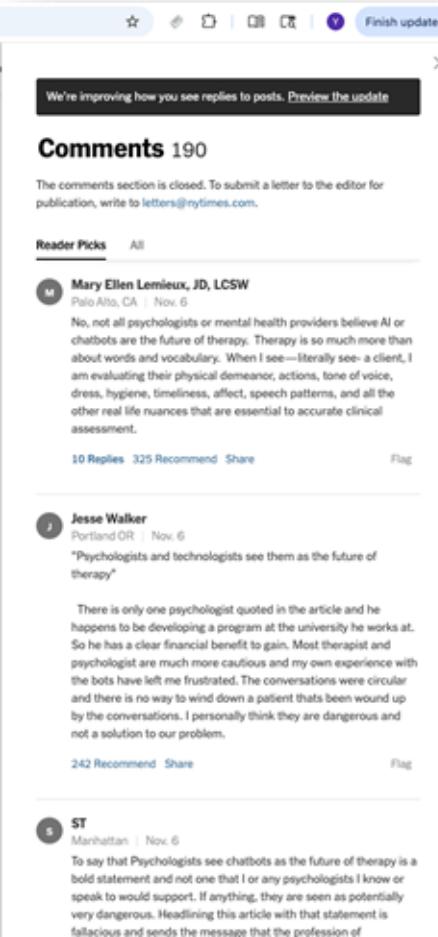
nytimes.com/2025/11/06/technology/ai-therapy-chatbots-ash.html

Finish update

## *Are A.I. Therapy Chatbots Safe to Use?*

Psychologists and technologists see them as the future of therapy. The Food and Drug Administration is exploring whether to regulate them as medical devices.





We're improving how you see replies to posts. [Preview the update](#)

## Comments 190

The comments section is closed. To submit a letter to the editor for publication, write to [letters@nytimes.com](mailto:letters@nytimes.com).

**Reader Picks** All

**Mary Ellen Lemieux, JD, LCSW**  
Palo Alto, CA | Nov. 6

No, not all psychologists or mental health providers believe AI or chatbots are the future of therapy. Therapy is so much more than about words and vocabulary. When I see—literally see—a client, I am evaluating their physical demeanor, actions, tone of voice, dress, hygiene, timeliness, affect, speech patterns, and all the other real life nuances that are essential to accurate clinical assessment.

10 Replies 325 Recommend Share Flag

**Jesse Walker**  
Portland OR | Nov. 6

"Psychologists and technologists see them as the future of therapy"

There is only one psychologist quoted in the article and he happens to be developing a program at the university he works at. So he has a clear financial benefit to gain. Most therapist and psychologist are much more cautious and my own experience with the bots have left me frustrated. The conversations were circular and there is no way to wind down a patient that's been wound up by the conversations. I personally think they are dangerous and not a solution to our problem.

242 Recommend Share Flag

**ST**  
Manhattan | Nov. 6

To say that Psychologists see chatbots as the future of therapy is a bold statement and not one that I or any psychologists I know or speak to would support. If anything, they are seen as potentially very dangerous. Headlining this article with that statement is fallacious and sends the message that the profession of

"No, not all psychologists or mental health providers believe AI or chatbots are the future of therapy. Therapy is so much more than about words and vocabulary. When I see—literally see—a client, I am evaluating their physical demeanor, actions, tone of voice, dress, hygiene, timeliness, affect, speech patterns, and all the other real life nuances that are essential to accurate clinical assessment."

- **Illinois and Nevada banned the use of therapy chatbots from providing mental health therapy in 2025 because the technologies were not licensed like human therapists** (Health Policy Institute of Ohio, 2025).
- **How well therapy chatbots work is unclear.**

# Research questions

- Why do users use chatbots on mental health apps?
- What is users' experience with chatbots on popular mental health apps?
- What are the effects of the use?

# Methods

- User review analysis
  - Apps selected: Yana, Wasa, Clarity.
  - Selected 60 user reviews for each app, 30 from the Apple App Store and 30 from the Google Play Store.
  - The 30 reviews had an equal number of ratings 1, 2, 3, 4, and 5.
  - Analyzed using the qualitative content analysis method, facilitated by MaxQDA.



# Chatbots' affordances fill a gap in people's MH help-seeking

## Chatbots' non-human nature

- **Shy personality:** *"I am an introvert." "I have anxiety when talking to people"*
- **Lack of ability to articulate feelings:** *"I struggle with talking to people about what I am feeling"*
- **Afraid of being judged:** *"I can talk to Yana about anything without being judged."*
- **Privacy concerns:** *"I am concerned about my privacy, which is why I chose AI to start therapy."*

## Chatbots' human-like conversing abilities

- **Lack of social support:** *"I do not have many friends or others to talk to about how I feel, and I don't have many people whom I trust or are open to listen."*

## Easy access

- 24/7
- Fast access

## Affordability

- Some users are not able to pay due to their financial situation.

# User-chatbot interactions

## User



Dump information



## Chatbot

### Information support

- Providing information sources
- Summarizing how I am doing

### Appraising support

- Analyzing emotions, thoughts, feelings
- Providing coping instructions, guides, suggestions, and advice

### Emotional support

- Providing emotional support and encouragement

### Companionship

- Checking on you

# Response-level user experience

- Accurate, unbiased
- Helpful, highly informative, thoughtful
- Positive, supportive, encouraging
- Not super generic, not repetitive
- Lack specificity
- Incoherent, irrelevant
- Repetitive
- Some messages are too generic and short (e.g., “Okay”)
- Not empathetic, potentially dangerous

# Conversation-level user experience

## Realistic, fluent, deep, real, and loyal

- “wildly realistic, fluent, deep,” users forgot they were talking to an AI
- “a great conversational partner, like we are talking to a real human, feels like a real and loyal friend.”
- “a therapist who is free.”

## Not like talking to a real, normal person

- Lacks conversational skills; mechanical, “like click options given to you, not like conversation”; talk in circles; not natural; forced
- Cannot hold a long conversation; poor at following and keeping conversations going
- Not able to resume an old conversation

# The effects of use

## Positive

### Emotional effects

- Make users feel less alone: “Yana helped me with missing my daughter as she travels”.
- Make users feel heard and relieved: “It feels like a weight has been lifted off my shoulders.”

### Alleviating social consequences of sharing MH challenges

- “Avoid the regret of who you shared it with.”

### Enhancing self-understanding

- “It helped me understand myself better.”

## Negative

### Emotional effects

- Makes users feel worse, leads to frustration.
- “Sometimes it can make you feel a bit empty when you realise you’re talking to something that isn’t alive.”
- User feels “guilty for the energy it takes every time you run a generative AI prompt.”

# Discussion

- AI chatbots are not for everyone, but they fill a gap in meeting users' need for mental health help-seeking, as users demand around-the-clock support that therapists cannot provide, and they are affordable.
- The negative experiences revealed are mostly about response and conversation quality. With the enhancement of conversation quality, more people may adopt the technology.
- In the future, we should conduct interview studies to more comprehensively understand human-AI chatbot interactions for mental health help-seeking.

Thank you to my student collaborators:

- Wan Ting Wang
- Abigail Stark

# **Considering AI Information Interactions among Chinese Older Adults**

**Annie T. Chen, MSIS, PhD  
Associate Professor**

**University of Washington School of Medicine  
Department of Biomedical Informatics and Medical  
Education**

# Agenda

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- Background
- Introduction and Research Objectives
- Our Work Up to This Point
- Next Steps: An Interview Study
- Concluding Thoughts

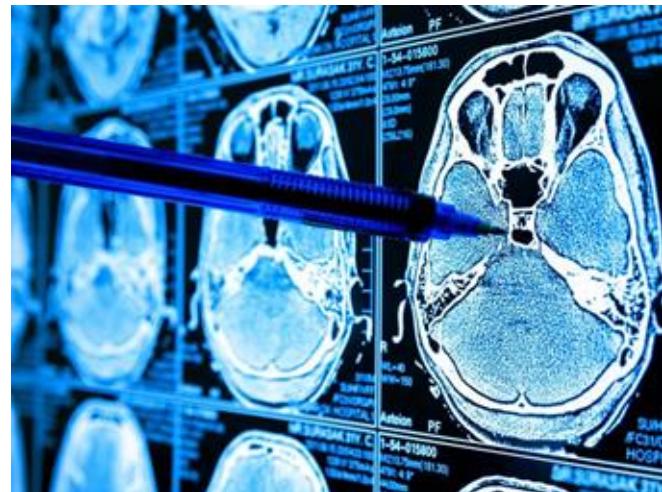
# Background

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- AI technology is increasingly becoming a part of everyday life
- Current research about AI interactions is centered primarily around younger generations, and less is known about how older adults can use AI safely (Oh et. al, 2021)
- Language barriers can limit access to AI technologies
- Gathering input from older adults with limited English proficiency can help us improve instructions, design clearer tools, and support digital independence

# Affordances and Challenges of AI in Healthcare

- AI can support healthcare through a variety of different tasks, such as interpreting radiology images (Bohr & Memarzadeh, 2020)
- AI can facilitate a transition from reactive to proactive approach to health, focusing on health management instead of disease treatment, which could mean fewer hospitalizations and early diagnosis (Bohr & Memarzadeh, 2020)
- However, many challenges with AI still exist, including privacy and information safety (Iliashenko et. al, 2019)
- Understanding how users conceptualize of and interact with AI can be critical to effective design



AI can assist radiologists when reading MRIs.  
*European Science-Media Hub, 2021*

# Why is AI Literacy Important?

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- Technology is evolving at an explosive pace, and is now seamlessly integrated into many aspects of daily life (e.g., digital payments, virtual meetings)
- AI affords opportunities to enhance independent living and well-being for older adults (Kaur & Chen, 2023)
- Learning basic digital skills can help people stay safe online and prevent cognitive decline (KangJie et al., 2025)
- Understanding about how AI works can make daily life easier, reduce frustration, and help people feel more confident and connected

# Introduction and Research Objectives

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- Our objective is to assist Chinese older adults with limited English proficiency to use AI more effectively
- We would like to understand what kinds of support would help make these tools more useful, and to improve AI education programs

## Our Work Up to This Point

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- We have been taking a community-engaged approach
- Through informal communications with community leaders, we came to understand that instruction on AI was desired
- We conducted an AI tutorial in May of 2025



Created using ChatGPT 4.0

# Tutorial Description

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- Focus: Basic introduction to ChatGPT
- Concept: Experiential learning and discussion
- Location: community center
- Duration: 75 minutes
- Language: Mandarin Chinese

The tutorial covered:

- Creation of a ChatGPT account
- Changing the settings (e.g., font size) – we employed screenshots with clear visual cues to walk participants through setting up their systems step-by-step
- Exercises with ChatGPT (planning a trip, explaining medical terms, explaining how to apply for Medicare, etc.)
- Strategies for prompt engineering

1

2

3

Appearance

Theme

Customize your toolbar

Mode

Show home button

Disabled

Show bookmarks bar

Show tab groups in bookmarks bar

Automatically pin new tab groups created on any device to the bookmarks bar

Side panel position

Show on right

Tab hover preview card

Show tab preview images

Show tab memory usage

Font size

Medium (Recommended)

Customize fonts

Page zoom

90%

Search settings

You and Google

Autofill and passwords

Privacy and security

Performance

AI innovations

Appearance

Search engine

Default browser

On startup

Languages

Downloads

Accessibility

System

Reset settings

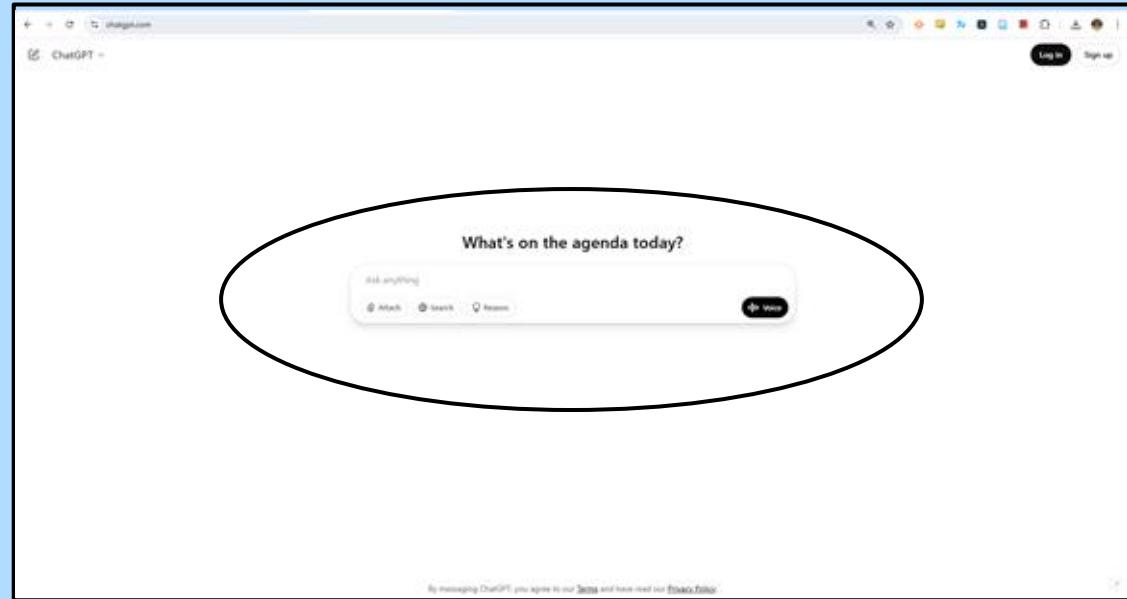
Extensions

About Chrome

# 輸入框

找到輸入框

畫面底部有一個空白文字框，這是輸入問題或指令的地方。



(Directing tutorial participants to the prompt window)

## 閱讀並檢視回應

- ChatGPT 會根據您的問題或指令給出最佳答案
- 若不滿意或想要更多細節，可追問：「可以提供更多資訊嗎？」

This slide invites participants to consider the quality of the answer that ChatGPT gave and how they might revise it to improve the quality of the results.

討論：

你問了什麼？得到什麼回答？你對答案滿意嗎？

## 升級問題/指令的秘訣

1. 保持簡潔明確
  - 用清楚、簡短的語句說明需求。
  - 例：「用白話解釋每天運動的好處。」
2. 具體且詳盡
  - 若需要特定風格或格式，請事先說明。
  - 例：「用輕鬆對話語氣寫一則有趣的狗狗短篇故事。」
3. 不斷嘗試不同方法
  - 第一次答案不滿意，就換句話說或補充細節。

Tips and tricks:

- Use clear and concise prompts
- Be concrete and precise (if something specific is needed, be sure to specify)
- Try different things!



使用了ChatGPT 4.0製造

# Key Takeaways

## Overall reception:

- Participants were enthusiastic and engaged during the session
- The conversation was very organic, and the participants demonstrated varying degrees of proficiency with technology and awareness of potential issues with AI

## Considerations for technology and multilingual support:

- Many people brought devices, including both computers and tablets
- There was need for substantial 1:1 assistance to get everyone set up (it was helpful to have multiple research team members there)
- There was a need for clearer communication about the language that the tutorial was given in
- We had an activity at the end for people to contribute questions to a collaborative document; this did not receive much attention

## Broader reach:

- There was substantial interest in the tutorial, with strong attendance and interest from another community organization afterwards

# Next Steps: An Interview Study

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- We plan to interview Chinese older adults to better characterize their health information behavior and patterns of interaction with AI, to inform the design of AI literacy programs and AI tools for older adults
- Eligibility criteria: 55 years and older, with their primary language being Chinese
- Duration: 60 minutes
- Participants can choose to be interviewed in-person (at a location convenient to them) or online
  - > Online: We will help with Zoom and ChatGPT setup
  - > In-person: Participants can bring your own computer, or we will provide one for the ChatGPT activity

# Interview Sections

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The interview will have two parts:

- **Part 1:** Participants' impressions of AI and how they find health information. [20 minutes]
- **Part 2:** Interactive ChatGPT activity. Participants will have the opportunity to work through different healthcare scenarios to explore how ChatGPT can help with information and communication needs. [40 minutes]



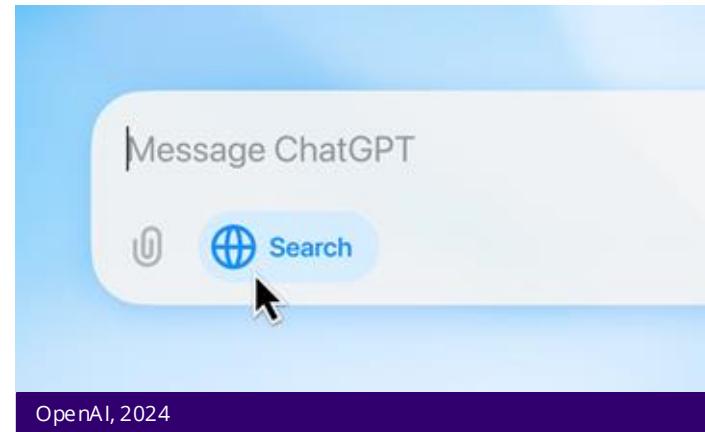
We are administering various instruments prior to the interview (e.g., demographics, health history, AI literacy).

## Seeking to Offer Benefits to Participants

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By participating, participants will have a chance to learn about:

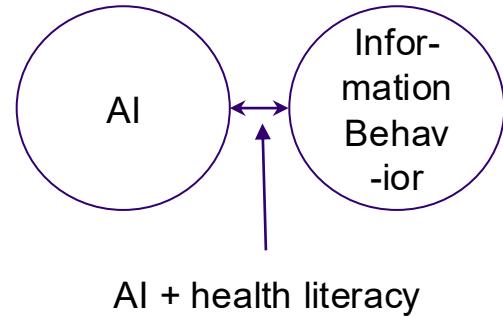
- Use ChatGPT to assist with obtaining, interpreting, and communicating information about health
- Use Zoom for collaborative communications (if they choose to be interviewed online)
- How to consider the strengths and limitations of AI tools



# Concluding Thoughts on AI and Health Information Behavior

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- I presented a case study of how we are partnering with communities to better understand Chinese older adults' potential use of AI tools for health-related purposes
- AI could potentially help us to improve our health management, but questions remain about how older adults may use AI to address health-related problems, and how to design to facilitate health-related interactions
- Considerations for the role of AI and health literacy



## Acknowledgments

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- Xinyu (Jonathan) Lu
- Zhangyu (Wendy) Wang
- Sharon H. Wong, MS

# Discussions

A1. What research methods and data sources are you currently using in HIB research?

A2. What's the biggest challenge you face in collecting or analyzing health behavior data today?

B1. Where have you seen AI make the biggest impact in HIB research, or where do you wish it could?

B2. Has anyone tried using AI tools in your research? What worked or didn't work?

B3. Which AI application excites you most for HIB research?

C1. How do you see the risks that AI amplifies existing health disparities or biases in our research?

C2. What safeguards do you think are most critical when using AI with sensitive health data?

D1. Whose voices matter most when we design or interact with AI systems for HIB research? (Researchers, patients, clinicians, policymakers, or someone else?)

D2. What's one breakthrough you hope to see AI enable in HIB research?

E1. What's one thing you'll try differently in your research after today's panel?