

Can ChatGPT Diagnose Psychopathology?

Developing a Chatbot to Assess for Alcohol Use Disorder

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Introduction

- Advancements in artificial intelligence (AI) have led to the development of chatbots that may be capable of conducting mental health assessments, offering accessible and scalable solutions.
- AI chatbots may be able to assess whether users meet Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM-5) criteria for psychopathology (American Psychiatric Association, 2013).
- Our project develops a chatbot to diagnose alcohol use disorder (AUD), defined by impaired control, social impairment, and risky use (American Psychiatric Association, 2013; NIAAA, n.d.).

Methodology

Procedure:

- The chatbot asks each of the 11 DSM-5 criteria for Alcohol Use Disorder (AUD) sequentially, with specific questions designed to elicit relevant information.
- The chatbot is based on a frontier ChatGPT model, which is instructed about how to ask about each of the criteria to meet the diagnosis.
- As criteria are met through affirmative responses, the application makes decisions and tracks the total number of criteria present.
- Based on the number of criteria met, the application automatically classifies AUD severity:

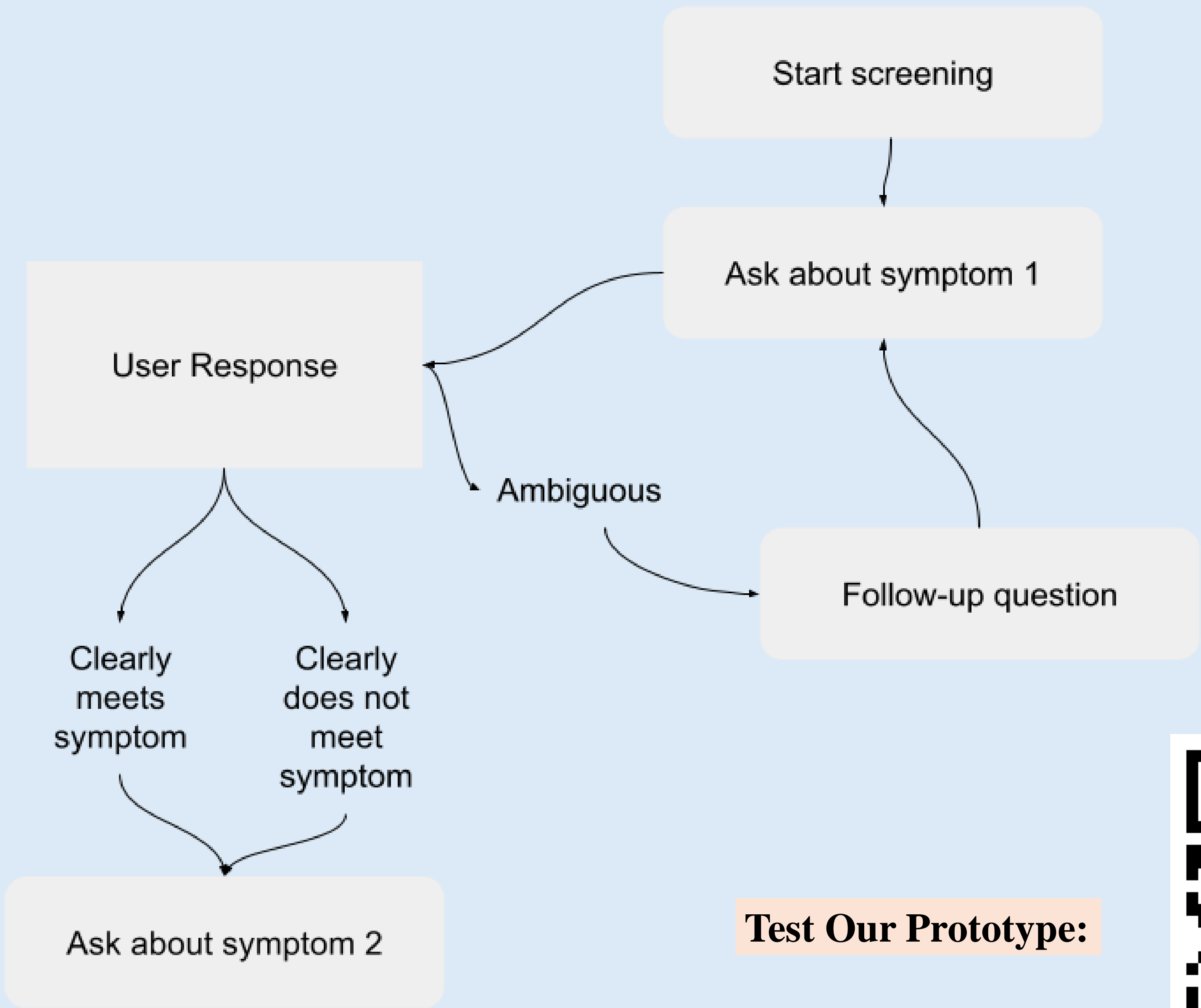
No Disorder: 0-1 criteria

Mild: 2-3 criteria

Moderate: 4-5 criteria

Severe: 6+ criteria
- The application is accessible via web browser, making it available across various devices and settings where AUD assessment may be conducted.

Results

The screenshot shows a web-based chatbot interface for Alcohol Use Disorder (AUD) diagnosis. On the left, a sidebar titled 'AUD Diagnostic Criteria' lists 11 criteria, with 'Criterion 1a' currently selected. The criteria are: 1. Alcohol taken in larger amounts or over longer period than intended; 2. Persistent desire or unsuccessful efforts to cut down or control alcohol use; 3. Great deal of time spent obtaining, using, or recovering from alcohol. Each criterion has a checkbox and an 'Ask' button. The main chat area on the right shows a conversation. The chatbot's first message is: 'Hello! I'll be asking you some questions about your alcohol use. Please answer honestly, and remember that this is a safe, confidential space. Let's begin with the first question.' The user's response is: 'During the past year, have you found that once you started drinking you ended up drinking much more than you intended to? For example, you planned to have only one or two drinks but you ended up having many more.' The chatbot's second message is: 'I need information about the patient's experience with drinking more than intended to assess this criterion.' There is a 'Stop Interview' button at the top right and an 'Ok!' button at the bottom right of the chat area.

Test Our Prototype:



Discussion

- AI-driven chatbots could effectively follow structured diagnostic criteria, providing a consistent approach to mental health assessments. Would users be willing to honestly disclose their symptoms to an AI?
- Unlike human clinicians, AI lacks emotional sensitivity and some contextual awareness, which may affect diagnostic accuracy. On the other hand, could its programmed decision-making help maintain a standardized screening process?
- Ethical concerns, including patient confidentiality and the potential for misdiagnosis, remain critical. How can these be addressed before widespread implementation?
- Continued improvements are necessary to enhance chatbot adaptability and response accuracy. But what steps are required to make these systems more reliable and user-friendly?

Future Directions

- Expanding test cases to include real patient interactions instead of scripted scenarios.
- Refining the chatbot's ability to handle ambiguous or unclear responses.
- Conducting direct comparisons between chatbot diagnoses and licensed clinical evaluations.
- Assessing patient perceptions and trust in AI-driven mental health tools to improve adoption and usability.

References

- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). <https://doi.org/10.1176/appi.books.9780890425596>
- National Institute on Alcohol Abuse and Alcoholism. (n.d.). Alcohol use disorder: A comparison between DSM-IV and DSM-5. <https://www.niaaa.nih.gov/publications/brochures-and-fact-sheets/alcohol-use-disorder-comparison-between-dsm-iv-and-dsm-5>
- OpenAI. (2025). *ChatGPT* (v4) [Large language model]. OpenAI. <https://openai.com/chatgpt>