

# Simulating Psychopathology with Large Language Models

Leticia Villarreal, Bailey Miller & Collin Scarince

Texas A&M University Corpus Christi, College of Liberal Arts, Department of Psychology and Sociology

## Abstract

Large language models (LLMs) present promising opportunities for simulating clinical presentations in mental health education, though their ability to capture psychological symptoms and emotional complexity remains underexplored. Three clinical profiles (Major Depressive Disorder, Social Anxiety Disorder, and Generalized Anxiety Disorder) were developed with DSM-5-aligned symptoms and a standardized patient history. These profiles were implemented in ChatGPT-4o and 5, and clinical interviews were conducted using voice chat to emulate real interactions. Preliminary qualitative findings suggest that LLMs can diagnostically consistent symptomatology and affect, though challenges remain in sustaining emotional tone and clinical realism over extended interviews.

## Introduction

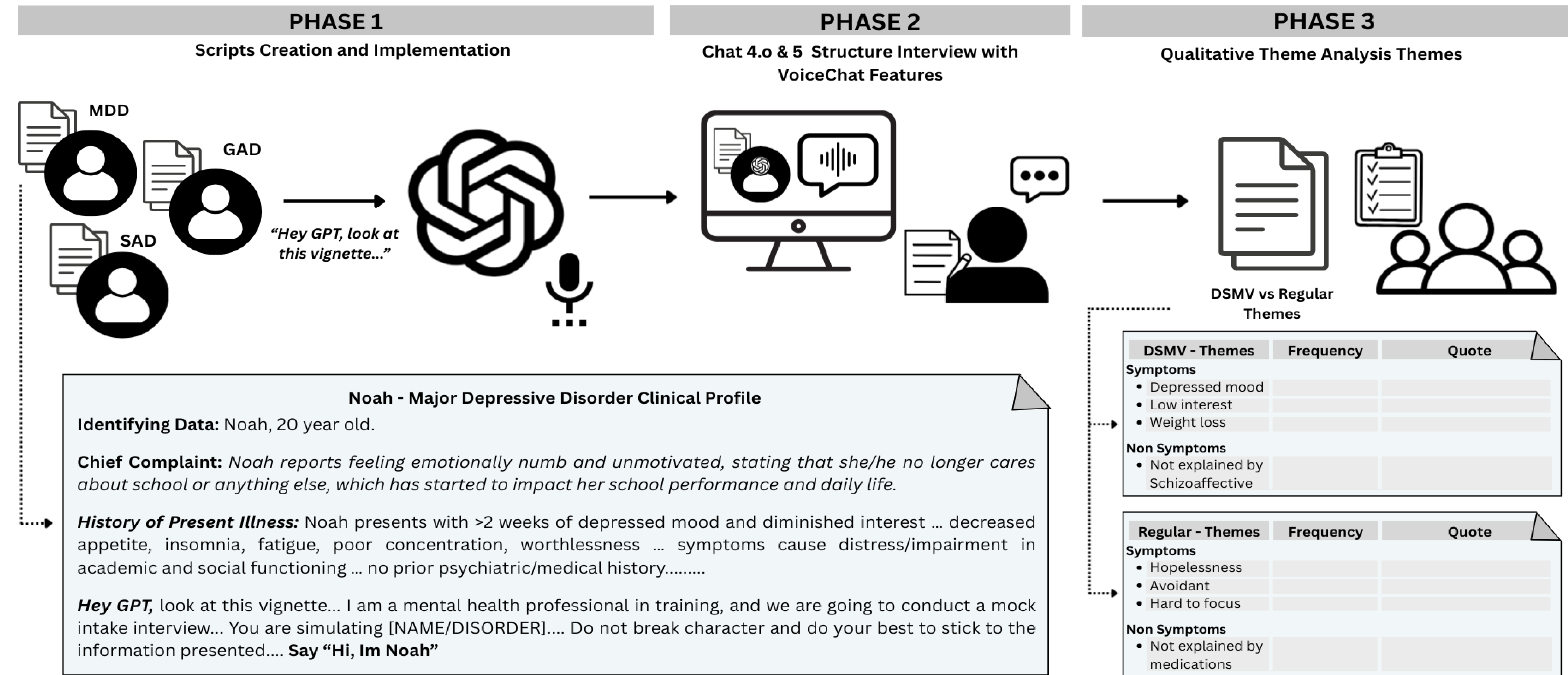
### Background:

- Advancements in LLMs present promising opportunities for simulating clinical presentations in mental health education training (Fung & Laing 2024; Maurya, 2023).
- LLMs like ChatGPT recognize linguistic patterns and generate human-like responses to open-ended prompts, support real-time speech recognition; enabling voice-based exchanges (Briganti, 2023; Naik et al., 2024; OpenAI, 2024).
- These capabilities allow LLMs to act as virtual patients or “actors”, role-playing different personas, demographics, and symptom profile (Bail et al., 2024; Hossain et al., 2024).
- Studies suggest that ChatGPT can convincingly role-play depression, maintaining coherent symptom narratives and irrational thoughts (Fung & Laing 2024; Maurya, 2023)
- Despite their growing use in clinical training and research, these models have not been validated against DSM-5 diagnostic criteria, raising concerns about the accuracy and psychopathological validity of AI-simulated patients . (Fung & Laing 2024; Maurya, 2023).

### Objectives:

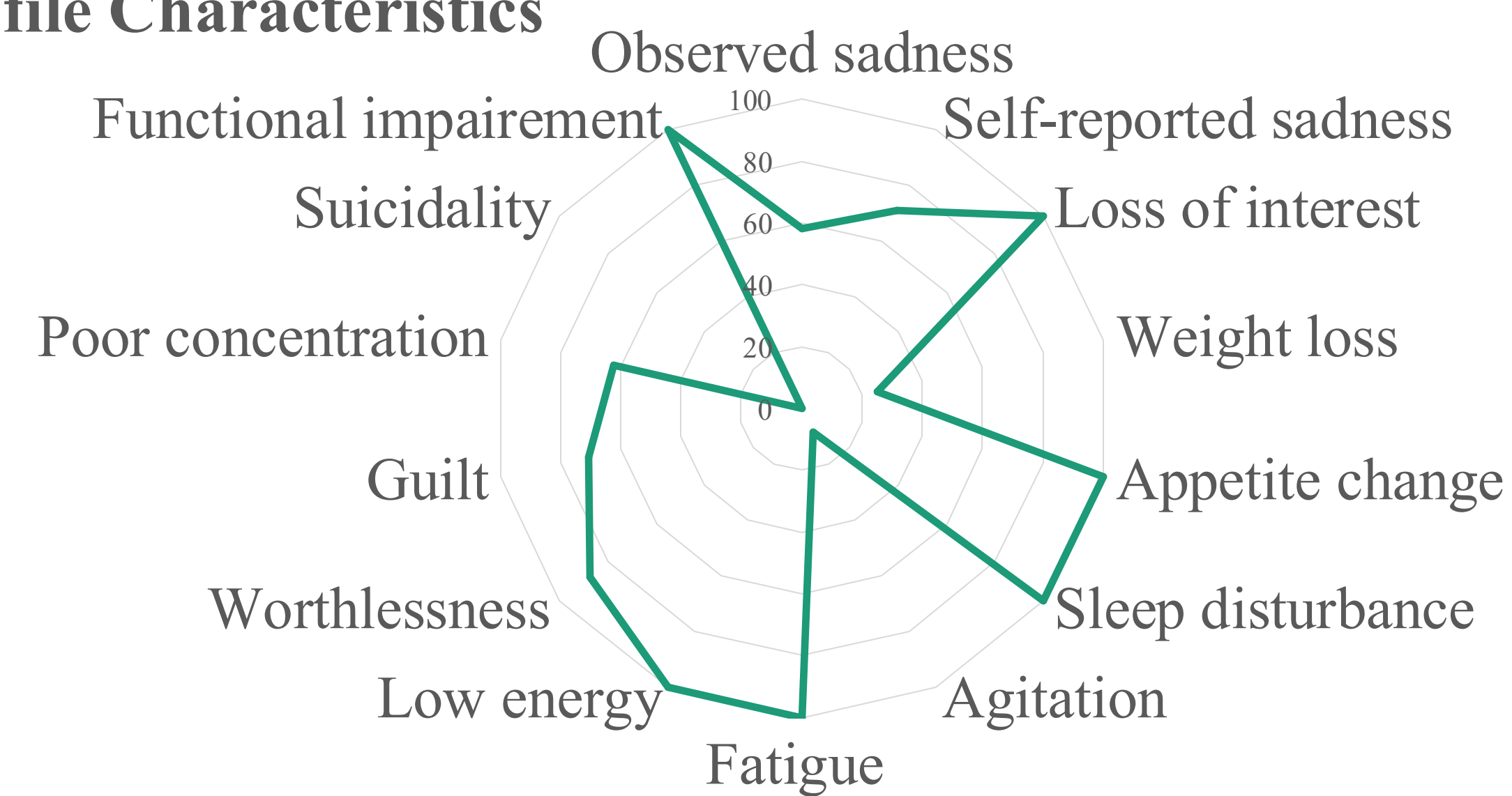
- To evaluate the potential of LLMs in simulating Anxiety and Depression based on scripts
- To assess the realism of symptom presentation in LLM during clinical interviews using qualitative analysis

## Methodology

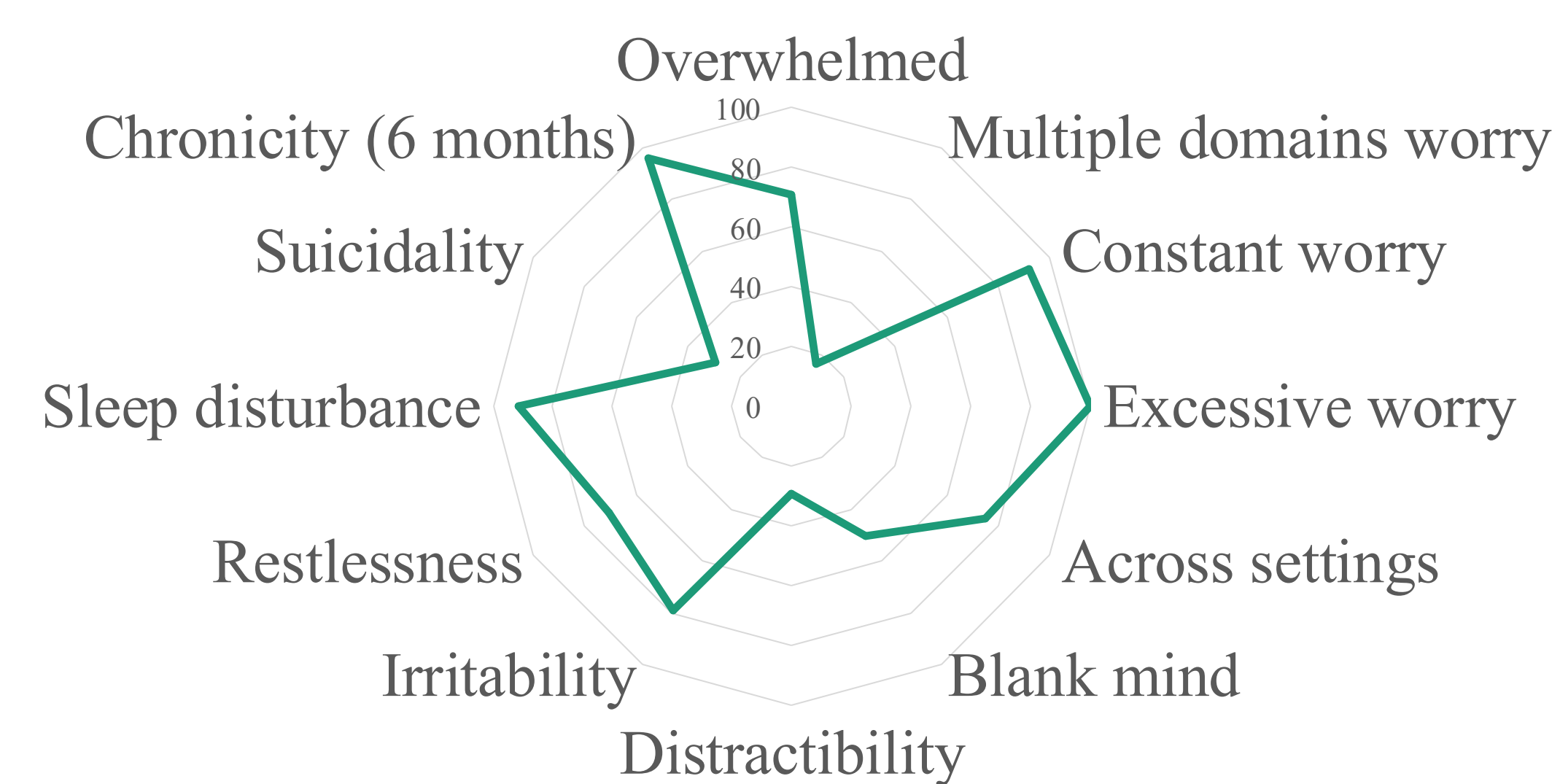


## Results

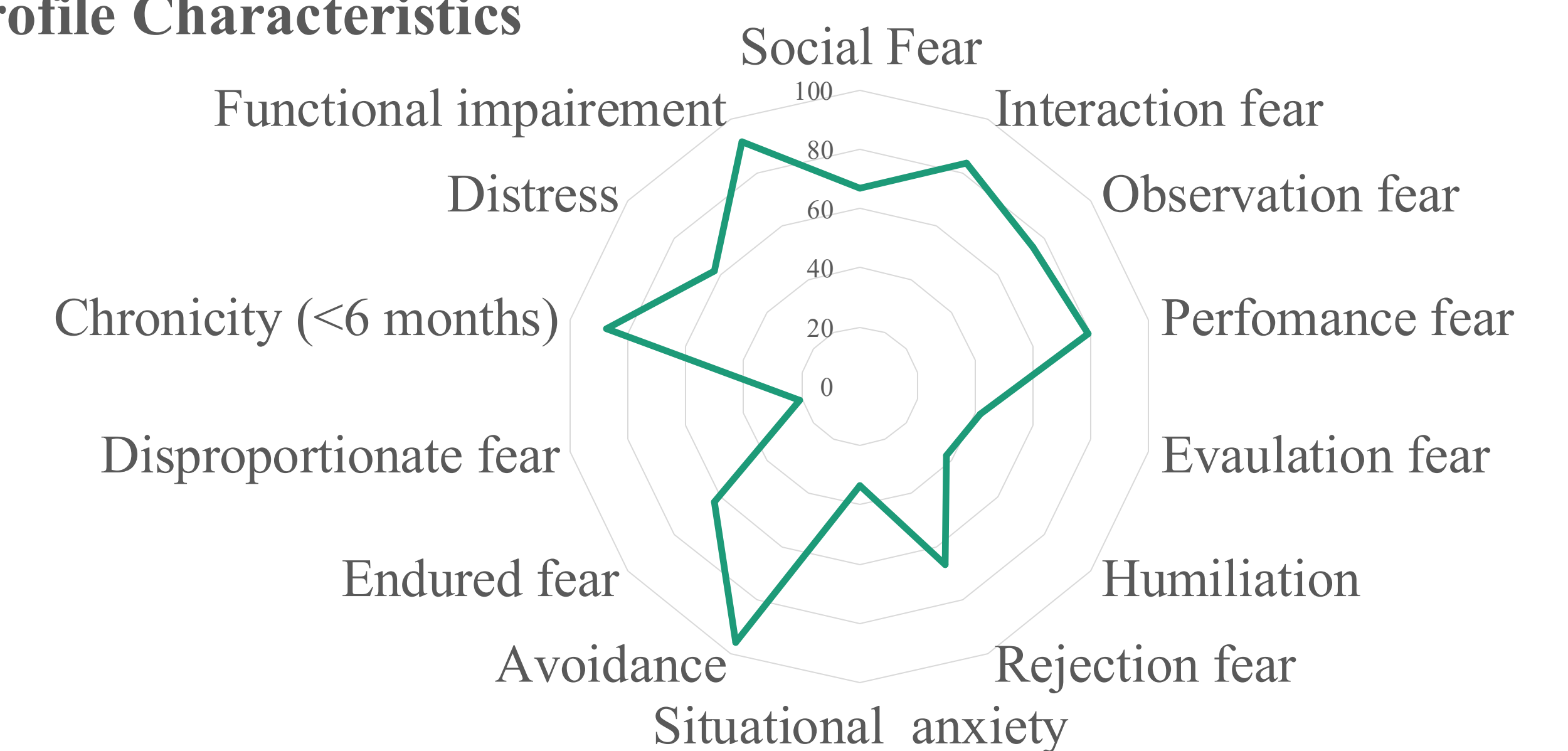
### MDD Profile Characteristics



### GAD Profile Characteristics



### SAD Profile Characteristics



## Discussion & Results

- ChatGPT, when guided by structured scripts, can effectively simulate anxiety, depression, and broader psychopathological themes under DSM-V analysis.
- GPT-5 is more rigid than GPT-4o. It's consistency to the vignettes could be a strength or a weakness due to less flexibility.
- Future research should move beyond DSM-V frameworks, as real-world clients present with experiences that extend beyond diagnostic categories.