# Can we speak to GPT to inform patient preference study?

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## Background

Patient Preference Study: Understanding patient preferences is crucial for addressing disease aspects like symptoms, unmet needs, and treatment options. Yet, collecting this data is challenging due to logistical constraints and limited resources, which restrict patient interaction.

Generative AI (GenAI): As a branch of artificial intelligence, Generative AI creates new content by analyzing extensive datasets and excels in reasoning, problem-solving, and creativity, with GPT as a key example.

Aim: This study explores how generative AI can assist in conducting or enhancing studies on patient preferences.



#### **References:**

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# Enhancing patient preference research with GenAl

By automating aspects of patient preference research, Generative AI can free up human researchers to engage more directly and meaningfully with patients – a priority that matters most – enhancing both the quality and efficiency of healthcare decision-making.

### How GenAl can support Preference Research Literature Reviews: Inform study design by collating existing literature and evidence synthesis (e.g., narrative synthesis, thematic synthesis) Attributes: Support identification of attributes from existing literature, including additional insights from social media. **Questionnaire Design**: Create tailored questionnaires and interview guides for diverse populations, including translations and simplified contexts for better patient interpretation **Protocol Development**: Simulate the methodological options to choose the most appropriate approach for the research Stakeholder Engagement: Supporting KOL engagement materials, including topic guides and **Recruitment**: Recommend the most appropriate population-specific recruitment strategies, including multiple survey variations and translations.

**Data Collection**: Provide interactive technology tools for stated preferences, including choices for DCE and ranking exercises for more efficient data collection.

Complement the data by expanding it through additional simulations and patient profiles, providing an opportunity to increase the sample and diversity of patients. Supplement researcher-analyzed data by uncovering additional insights, understanding the tone of transcripts, and sentiment analysis.

• Create stakeholder-specific summary documents and narratives for dissemination • Create visualizations using the DALL-E extension (though its current applicability is limited), improving communication and efficient dissemination of findings

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## Challenges and potential solutions

### **NEW** Role of Human Expert Research Team

Literature Reviews: Validate the AI-generated output and complement it with additional evidence synthesis.

Attributes: Talking to patients, caregivers, and stakeholders for the identification of attributes + validation of AI-generated input.

**Questionnaire Design**: Conceptualize the questionnaire by talking to patients and stakeholders + validation of AI-generated output.

**Protocol Development**: Estimate the study feasibility and plan out the approach, including objectives, population, and methodology + validation of AI-generated input.

Stakeholder Engagement: Develop the overall methodology based on the research objective and patient population

**Recruitment**: Develop the most appropriate strategy based on stakeholder engagement + validation of AI-generated output and methodological simulations.

**Data Collection**: Optimize data collection based on conventional surveys + AI-generated interactive tools, providing a more comprehensive approach that is more patient-friendly.

#### **Evidence Synthesis:**

• Quantitative and qualitative data analysis using conventional methods + validation of AIgenerated output.

• Validation of the simulated results with stakeholder engagement – Despite a small sample size, the simulations can complement the data and amplify for comprehensive estimates.

#### **Dissemination**:

• Develop dissemination materials for researchers and stakeholders, including patients, healthcare providers, and policymakers, and validate the AI-generated output, including visuals and stakeholder-specific summary documents.

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Validation - Ensuring that the outputs truly reflect patient preferences requires rigorous validation processes due to the complexity of human decision-making and the potential biases inherent in AI algorithms. Thus, the role of human experts in validation of GenAl outputs is crucial.

**Privacy and data security** – GenAI algorithms often require access to large volumes of sensitive patient data, raising concerns about the potential for privacy violations. Potential solutions include adopting robust encryption techniques and using data anonymization to protect patient identities.

Autonomy - Reliance on AI to analyze and interpret patient data might undermine patients' ability to make autonomous decisions about their healthcare. To preserve patient autonomy and enhance trust, it is essential to use AI as an adjunct to human judgment in a transparent, participatory model that includes patients in decision-making processes about their care.

