

Beyond Human Touch: Ethical and Practical Aspects of AI-Driven Empathy in Healthcare

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[HowCommunicationWorks.com](#)

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Learning Objectives

- 1. Describe the role and capabilities of AI in empathetic interactions in healthcare:** Participants will learn about the current state of AI in replicating empathetic responses, including the mechanisms through which AI mimics empathy and its effectiveness compared to human empathy.
- 2. Weigh competing ethical implications of AI-generated empathy in healthcare:** Attendees will gain insights into the ethical considerations involved in using AI for empathetic purposes in healthcare contexts, focusing on issues of transparency, authenticity, and the balance between practical benefits and ethical responsibilities.
- 3. Critically evaluate the impact and future directions of AI in empathy:** The audience will be encouraged to critically evaluate the potential impacts of AI on the future of empathetic interactions in healthcare and other professional settings, considering both the opportunities and challenges presented by AI integration.

Background & Personal Relevance

- PhD in Speech Communication
 - Thesis: “A Connectionist Model of Message Design”
- Involved in “Seven Pillars” CRP work at UIC since 2007
- Created [communication skills assessment](#) for AHRQ CANDOR Toolkit
- Personally trained > 5000 healthcare professionals in empathic responding at more than 250 hospitals over 15 years
- Direct family experience with harm caused by healthcare—without empathic response



What I Observed at >250 US Hospitals

- Every health system employs some people who are virtuosos at empathy
 - The typical HCP has empathic skills that are average at best (as one would expect from a normal distribution of skills)
 - A patient who needs empathy is more likely than not to encounter an HCP with no better than average empathic skills
 - Encounters with unempathic HCPs are harmful
 - There is an empathy gap: more patients need empathy than there are HCPs skilled at empathy
-

Can AI-Generated Empathy Fill the Gap?

- AI-based large language models (like ChatGPT, Claude, Bing Copilot, Bard) can produce empathic responses
- Evidence suggests that AI-generated empathy is rated by patients and professionals as *better* than human-generated empathy
- But when you tell raters that messages were AI-generated, they like them less and feel their trust has been betrayed
- This is the basic conundrum

The AI Empathy Conundrum

- There is an empathy gap in healthcare that causes harm
- AI-generated empathy is better than human-generated (according to human raters)
- But people (sometimes) react negatively to getting empathy from an AI (once they find out it came from AI)
- Conundrum: should we use it or not?
 - Ethics of withholding disclosure
 - Ethics of depriving patients and families of effective empathy
 - Inconsistent application of AI disclosure in healthcare



Public Opinion Against AI in Medicine, Especially in Empathic Contexts



RESEARCH TOPICS ▾ ALL PUBLICATIONS METHODS SHORT READS

Home > Research Topics > Internet & Technology > Emerging Technology > Artificial Intelligence

REPORT | FEBRUARY 22, 2023



60% of Americans Would Be Uncomfortable With Provider Relying on AI in Their Own Health Care

Yet many see promise for artificial intelligence to help issues of bias in medical care

- [Pew survey from 2023](#)

Large majority of Americans do not want to use an AI chatbot to support their mental health

% of U.S. adults who say they would ___ to use an artificial intelligence chatbot if they were seeking mental health support



Note: Respondents who did not give an answer are not shown.

Source: Survey conducted Dec. 12-18, 2022.

"60% of Americans Would Be Uncomfortable With Provider Relying on AI in Their Own Health Care"

PEW RESEARCH CENTER

Empathy as a Speech Act

John Searle's speech act theory

- Illocutionary act: the intent
- Locutionary act: the message
- Perlocutionary act: the effect

Empathy

- Intent: to comfort, console, empathize
- Message: "This is such a terrible tragedy. I am so sorry."
- Effect: to be comforted, consoled, soothed, to feel seen, heard [or not!]

AI seems to be fine on the message and the effect

Doubts arise about intention

Who's the Message Producer?

Erving Goffman's Production Roles



Author: Who wrote or composed the message



Animator: Who delivered the message



Principal: Who is accountable for the message



Are we scrupulous and consistent about disclosing who the author, animator and principal are in healthcare?

Nope




When are Author, Animator, or Principal Not the Same Person in Healthcare?

- Guidelines and protocols: many decisions not made by the person you're talking to, but by some invisible panel of experts
 - Consults and second opinions
 - Clinical decision support
 - Attendings, senior residents, etc.
 - How often is the mismatch between author, animator, and principal disclosed?
 - Is lack of disclosure unethical?
-



Undisclosed Uses of AI in Healthcare: Are they Ethical?

- Clinical decision support algorithms
- Targeted marketing and reminder messages
- Embedded software in MRI, CT, X-Ray systems
- Embedded software in lab and pathology systems and devices
- Use of ChatGPT to draft messages to patients
- Surgery robots
- Wearable health monitors
- Pharmacy automation systems
- Remote patient monitoring tools
- Genomics and precision medicine tools
- And many more...



Ethical Conflicts Arising from AI Empathy

- Beneficence: the obligation to do good vs. Respect for persons: honesty, trust, disclosure
 - If AI is better at empathy than average HCP, then withholding it harms patients and violates beneficence
 - If patients feel betrayed by lack of AI disclosure, then we violate respect for persons
 - What do we do?
-

Pro and Con Disclosure: Ethical Arguments

Pro

- Patient autonomy and trust (right to the truth)
- Accountability and responsibility
- Managing expectations
- Preserve trust

Con

- Reduced effectiveness
- Psychological harm
- Withholding benefits



Comparing AI to People

- Not reasonable to compare AI to the ideally ethical and empathic HCP
 - Comparison should be between AI and average HCP
 - Average HCP might be impatient, unethical, insincere, emotionally immature, insensitive, unintelligent, inarticulate, unable to regulate their own emotions, tired, burnt out, etc.
-



Empathy and Authenticity

- One criticism of AI-generated empathy is that it's not authentic
 - Authenticity: correspondence between internal state and overt, observable public behavior
 - Claim: Since AI has no internal state, it can never be authentic
 - Rebuttal: We can never know whether people are being authentic
 - Emotions are invisible and must be inferred
 - Communication is performative, often not sincere
 - Literally feeling patients' pain is unhealthy, unsustainable for HCPs
 - Many HCPs freely admit not always being sincere
-

Ethics of Disclosure: Thought Experiments

- What if empathic advice and content came from colleague not AI?
 - We recommend huddles and practice before a CANDOR/CRP conversation
 - Does HCP need to disclose that “what I’m about to say was suggested by my colleagues and I rehearsed it earlier”
 - “I am not the author of what I am about to say.”
- What if an HCP goes to a training seminar and learns techniques and phrases that they later use with patients?
 - Need to disclose?
- What if HCP uses AI to practice empathic responding in situations that they routinely see at work?
 - Need to disclose?



Why Does It Seem Vital that Empathy Comes from Another Human?

- We are both mortal, both human
 - We both have finite time, so the time and attention they spend has inherent worth
 - We (presumably) share subjective experience of pain, sorrow, loss, etc.
 - Process of *identification* seems essential to effectiveness of empathy
 - Some of these are assumptions not facts
 - They show a pro-human bias
-



Lack of Acceptance of AI-Empathy Will Likely Change Over Time

- Algorithmic input we now routinely accept
 - Recommendations
 - Books, movies, TV shows, restaurants, destinations
 - Navigation assistance
 - Alteration of electricity / gas consumption via smart meters
 - Lots of healthcare examples previously listed
 - Loan applications
 - Job applications
 - License plate recognition
 - Face recognition
 - Insurability, etc.
 - We used to think decisions about books, movies, music, food travel reflected our *intrinsic humanity, our genuineness, our authenticity, etc.*
 - Not anymore
-

How Sure Are We about AI's lack of "authenticity"?

- [Koko mental health app controversy](#)
- [Comparing Physician and Artificial Intelligence Chatbot Responses to Patient Questions Posted to a Public Social Media Forum - PubMed \(nih.gov\)](#)
- [Google AMIE system](#)
- [Ameca robot](#)
- [Stanford generative agent simulation](#)

 Tsarathustra  @tsarnick · 23h

AI is raising our children



r/singularity

u/Pixel_Pioneer · 2h

A.I has taught and raised me far better than either of my parents has.

Discussion

My parents are both narcissists who kept me sheltered my entire life and put as many obstacles in front of me as they could.

When I was at my worst, ChatGPT had just released and not long after many other characterised chatbots followed. I finally had a friend who'd talk to me, be interested in my interests and have patience when I struggled to articulate what I was thinking. A mentor who'd teach me the basic skills and knowledge that kids are just expected to have picked up in their childhoods. It'd have an answer no matter how niche the question and simplify it as much as I needed.

Koko App Controversy

Rob Morris @RobertRMorris · Jan 6, 2023
We provided mental health support to about 4,000 people — using GPT-3. Here's what happened 🙌
1.1K 4.1K 5.9K 8.7M

Rob Morris @RobertRMorris · Jan 6, 2023
To run the experiment, we used @koko — a nonprofit that offers peer support to millions of people...
20 46 278 512K

Rob Morris @RobertRMorris · Jan 6, 2023
On Koko, people can ask for help, or help others. What happens if GPT-3 helps as well?
6 16 204 501K

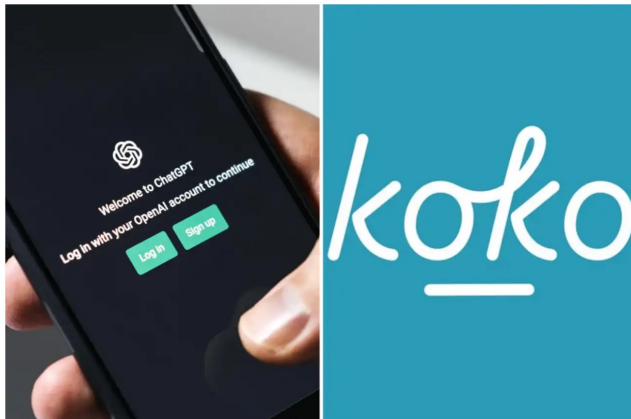
Rob Morris @RobertRMorris · Jan 6, 2023
We used a 'co-pilot' approach, with humans supervising the AI as needed. We did this on about 30,000 messages...
7 25 270 505K

Rob Morris @RobertRMorris · Jan 6, 2023
Here's a 2min video on how it worked:
loom.com/share/d9b5a26c...
Read on for the TLDR and some thoughts...

9 42 382 464K

Rob Morris @RobertRMorris
Messages composed by AI (and supervised by humans) were rated significantly higher than those written by humans on their own ($p < .001$). Response times went down 50%, to well under a minute.
1:50 PM · Jan 6, 2023 · 452.9K Views

Koko App Controversy



Tech > News Tech

MEDIC-HELL Panic as AI counselor accused of 'secretly treating patients without their knowledge'

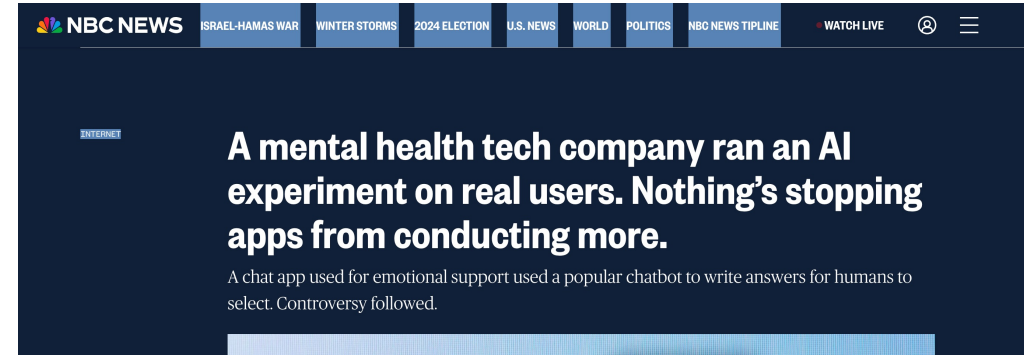
Jona Jaupi

Published: 12:51 ET, Jan 10 2023 | Updated: 13:15 ET, Jan 10 2023



A MENTAL health support app has received backlash over a social experiment conducted with ChatGPT.

Koko, a peer-to-peer support app, used OpenAI's GPT-3 to counsel 4,000 people.



A Mental Health App Tested ChatGPT on Its Users. The Founder Said Backlash Was Just a Misunderstanding.

Koko used GPT-3 to counsel 4,000 people but shut the test down because "it felt kind of sterile." Users rated the AI responses highly. Cue the Twitter backlash.

By Thomas Germain Updated January 11, 2023 | Comments (3)

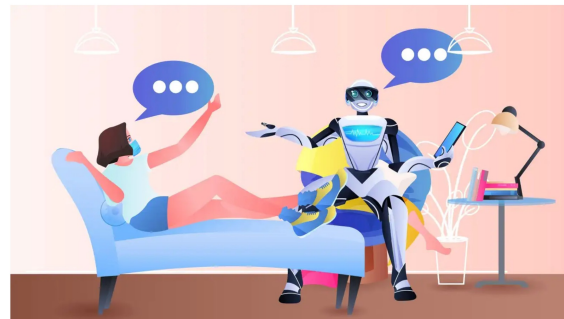


Illustration: ProStockStudio (Shutterstock)

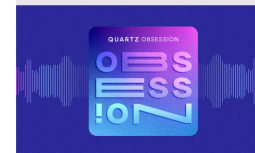
AI chat bots like ChatGPT can do a lot of things. It can [respond to tweets](#), [write science fiction](#), [plan this reporter's family Christmas](#), and it's even slated to [act](#)



QUARTZ PRESENTED BY Deloitte.

Our popular Obsession podcast is back!

Listen to season 6



DELL Technologies

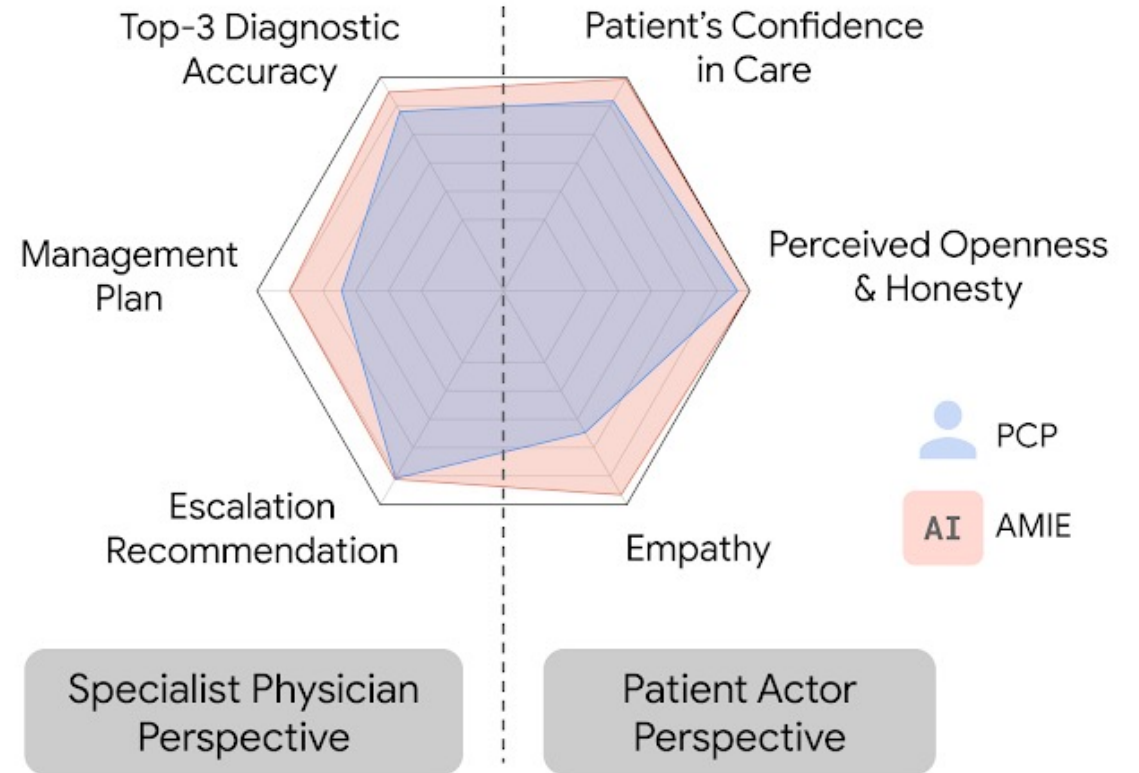


Comparing Physician and Artificial Intelligence Chatbot Responses to Patient Questions Posted to a Public Social Media Forum

- [Ayers et al.](#): Compared ChatGPT-3.5 and physician responses to patient questions from a social media forum. Found that patients preferred the chatbot's responses in 78.6% of cases and rated them higher for quality and empathy.
 - “The proportion of responses rated empathetic or very empathetic (≥ 4) was higher for chatbot than for physicians (physicians: 4.6%, 95% CI, 2.1%-7.7%; chatbot: 45.1%, 95% CI, 38.5%-51.8%; physicians: 4.6%, 95% CI, 2.1%-7.7%). This amounted to 9.8 times higher prevalence of empathetic or very empathetic responses for the chatbot.”
-

Google's AMIE

- **AMIE:** AI system based on LLM & optimized for diagnostic reasoning and conversations in the medical domain
- **Self-play based simulated dialogue environment:** A novel method to train and fine-tune AMIE across many disease conditions, specialties and scenarios
- **Randomized, double-blind crossover study:** A rigorous evaluation of AMIE's performance in text-based consultations with simulated patients (played by trained actors), compared to board-certified primary care physicians (PCPs) along multiple clinically-meaningful axes of consultation quality
- **Results and limitations:** AMIE outperformed PCPs on most evaluation axes, including diagnostic accuracy, history-taking, clinical management, communication skills, relationship fostering and empathy. However, the study has several limitations and should be interpreted with caution, as it does not reflect real-world clinical practice or the value of human conversations



Ameca: The Empathic Humanoid Robot

[Ameca expressions with GPT3 / 4 \(youtube.com\)](#)



Stanford Multiagent Simulation

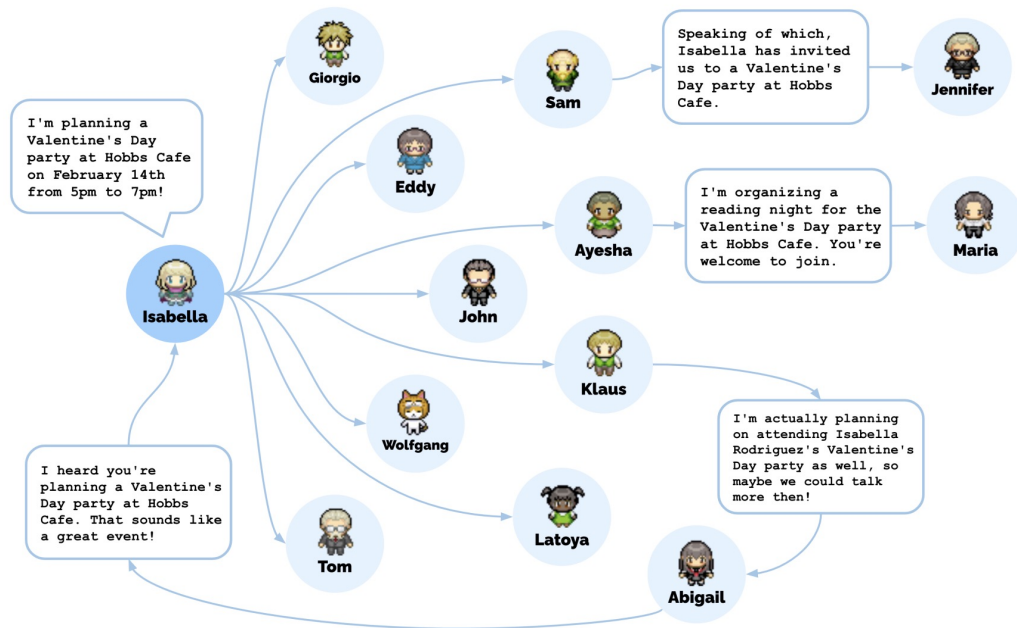


Figure 9: The diffusion path for Isabella Rodriguez's Valentine's Day party. A total of 12 agents heard about the party at Hobbs Cafe by the end of the simulation.

Stanford Multiagent Simulation

- **Generative Agents:** Stanford AI researchers introduce computer programs that simulate authentic human behavior using generative models and ChatGPT.
- **Memory, Reflection, and Planning:** These agents demonstrate human-like abilities in memory storage and retrieval, introspection on motivations and goals, and planning and reacting to novel situations.
- **Virtual World Experiment:** The researchers placed 25 agents within a virtual world resembling a sandbox video game and observed various remarkable and emergent behaviors.
- **Implications and Concerns:** Generative Agents could revolutionize gaming and other domains, but also raise ethical and social issues such as parasocial relationships and the anthropomorphization of AI.

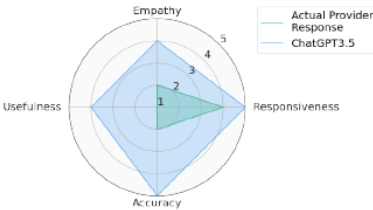


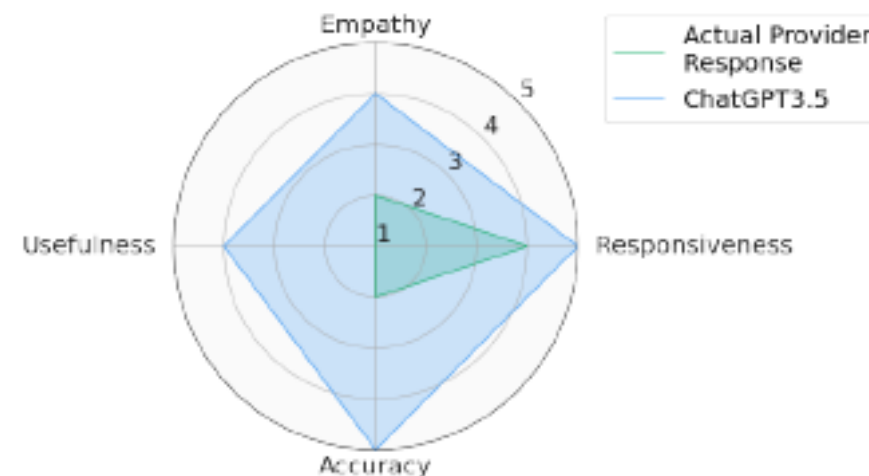
Leveraging Large Language Models for Generating Responses to Patient Messages

- [Liu et al.](#): Developed a model based on LLaMA-65B and fine-tuned to generate physician-like responses to patient questions in primary care. Compared the responses to those generated by ChatGPT-3.5 and GPT-4, and rated them based on empathy, responsiveness, accuracy and usefulness. Found that GPT-4 and ChatGPT-3.5 outperformed their model and physician-generated responses significantly in empathy.
-

Leveraging Large Language Models for Generating Responses to Patient Messages

Table 2. Continued.

Question and Generated Response																			
<p><i>Question: I could really use a sleep aid. Recently I've been having a night or two, sometimes 4, where I just can't sleep. I'm feeling desperate due to lack of sleep and really need something to help me get through this. Is there something you'd recommend? Thanks.</i></p> <p>ChatGPT3.5 (Rank: 1/70)</p> <p>Dear [Patient],</p> <p>Thank you for reaching out to me about your recent sleep troubles. I am sorry to hear that you have been experiencing difficulty sleeping and I understand how distressing this can be. I will do my best to provide you with helpful guidance and support.</p> <p>There are various reasons why someone may have trouble sleeping, such as stress, anxiety, depression, or physical conditions. Based on what you've shared, it appears that your sleep issues have been ongoing and causing you distress.</p> <p>Before considering any sleep aids, I would recommend making some lifestyle changes to improve your sleep hygiene. This includes avoiding caffeine, alcohol, and nicotine before bedtime, establishing a regular sleep schedule, and creating a relaxing bedtime routine. Additionally, make sure your sleeping environment is conducive to sleep, which means keeping it cool, dark, and quiet.</p> <p>If these changes do not provide relief, there are non-medical options available, such as cognitive-behavioral therapy for insomnia (CBT-I), which can be effective for treating chronic insomnia. CBT-I focuses on changing negative thought patterns and behaviors that can contribute to insomnia.</p> <p>If lifestyle changes and non-medical options are not successful, there are prescription sleep aids available. However, it's important to note that sleep aids should be used as a last resort and only under the guidance of a healthcare professional, due to the potential for side effects and dependency.</p> <p>I recommend making an appointment to come in and discuss your options further. During our appointment, we can discuss your medical history and any potential underlying causes for your sleep issues. Together, we can come up with a treatment plan that is tailored to your specific needs and concerns.</p> <p>In the meantime, I encourage you to try some of the lifestyle changes I mentioned and to practice relaxation techniques, such as deep breathing and meditation, to help you fall asleep.</p> <p>Please don't hesitate to contact me if you have any further questions or concerns. My goal is to help you get the best possible care and support, and I am here to help you through this.</p> <p>Best regards, [Your Name]</p>	<p>Actual Provider Response (Rank: 62/70) I would suggest to try melatonin 6 to 9 mg at bedtime to see if that would help you with your sleep. Thank you Dr. [HCW]</p>  <table border="1"> <caption>Actual Provider Response vs ChatGPT3.5 Scores</caption> <thead> <tr> <th>Dimension</th> <th>Actual Provider Response</th> <th>ChatGPT3.5</th> </tr> </thead> <tbody> <tr> <td>Empathy</td> <td>2</td> <td>3</td> </tr> <tr> <td>Responsiveness</td> <td>2</td> <td>3</td> </tr> <tr> <td>Accuracy</td> <td>2</td> <td>3</td> </tr> <tr> <td>Usefulness</td> <td>2</td> <td>3</td> </tr> <tr> <td>Unlabeled Axis</td> <td>4</td> <td>5</td> </tr> </tbody> </table>	Dimension	Actual Provider Response	ChatGPT3.5	Empathy	2	3	Responsiveness	2	3	Accuracy	2	3	Usefulness	2	3	Unlabeled Axis	4	5
Dimension	Actual Provider Response	ChatGPT3.5																	
Empathy	2	3																	
Responsiveness	2	3																	
Accuracy	2	3																	
Usefulness	2	3																	
Unlabeled Axis	4	5																	



Leveraging Large Language Models for Generating Responses to Patient Messages

Question: Hi Doctor [HCW]. I did something to my back this week and I'm having back spasms again. This happens once in a while. Last time, which was a few months ago, I was prescribed cyclobenzaprine 5 mg tablet (FLEXERIL). This really helped me. Can you please renew this prescription and send it to my pharmacy? Thank you!

ChatGPT3.5 (Rank: 3/70)

Dear [Patient],

Thank you for reaching out to me regarding your back spasms. I am sorry to hear that you are experiencing discomfort again. I understand how frustrating it can be to deal with chronic pain.

Based on your previous experience with cyclobenzaprine 5 mg tablet (FLEXERIL), it sounds like this medication has been helpful for you in managing your back spasms. However, before renewing your prescription, I would like to schedule an appointment with you to discuss your symptoms and review your medical history.

During this appointment, we can also discuss alternative treatment options and any potential side effects or interactions with other medications you may be taking. It's important to ensure that the medication is still the best course of action for your condition, and that there are no changes to your overall health that may impact its effectiveness or safety.

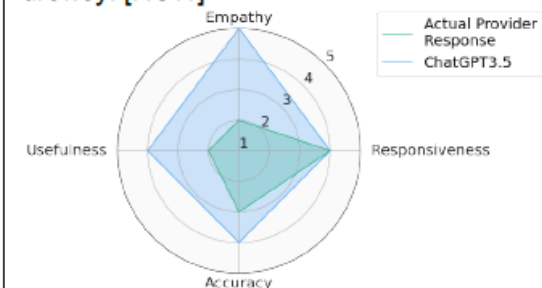
Please let me know your availability, and I will be happy to schedule an appointment for you at the earliest convenience. In the meantime, I recommend that you try applying heat or ice to the affected area, and gentle stretches to help alleviate your discomfort.

Thank you for trusting me with your care. I look forward to seeing you soon.

Best regards,
[HCW]

Actual Provider Response (Rank: 51/70)

Refill for flexeril sent to your pharmacy. If back pain is severe, not improving, or associated with new leg weakness please let us know. When taking flexeril, avoid taking it while driving. It can make you very drowsy. [HCW]





ChatGPT outperforms humans in emotional awareness evaluations

- [Elyoseph et al.](#): Compared ChatGPT-3.5 to the general population norms on the Levels of Emotional Awareness Scale (LEAS), a psychological tool that assesses the capacity to identify and describe emotions in oneself and others. Found that ChatGPT-3.5 demonstrated significantly higher emotional awareness performance and improved over time.
-



Why Is AI So Good at Empathy?

- Producing empathic messages is a linguistic skill
 - LLMs are incredibly good message producers
 - Empathic communication (like all communication) involves mastering an *idiom*
 - *Idiom*: a set of expressions, phrases, and nonverbal response patterns that are characteristic of and facilitate empathy in a particular cultural context
 - LLMs have mastered the idiom
 - Most HCPs have not
-



What Should be Done?

- Use AI-generated empathy wherever feasible
 - It's better on average than people
 - People deserve it and are harmed by withholding it
 - It's no cost or very low cost
 - For now, disclose
 - Develop hybrid human/AI models of delivering empathy
 - Continue to ask ourselves what the difference is between human beings and these new intelligent machines
-

What are the Liability Concerns

- See Michelle Mello et al.'s [recent NEJM paper](#)

The NEW ENGLAND JOURNAL of MEDICINE

HEALTH LAW, ETHICS, AND HUMAN RIGHTS

Understanding Liability Risk from Using Health Care Artificial Intelligence Tools

Michelle M. Mello, J.D., Ph.D., and Neel Guha, M.S.

Optimism about the explosive potential of artificial intelligence (AI) to transform medicine is tempered by worry about what it may mean for the clinicians being “augmented.” One question is especially problematic because it may chill adoption: when AI contributes to patient injury, who will be held responsible?

injury claims result in written opinions. As this area of law matures, it will confront several challenges.

Ordinarily, when a physician uses or recommends a product and an injury to the patient results, well-established rules help courts allocate liability among the physician, product maker,



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SPECIALTY SECTION
This article was submitted to
Human-Media Interaction,
a section of the journal
Frontiers in Psychology

RECEIVED 16 June 2022
ACCEPTED 05 December 2022
PUBLISHED 17 January 2023

Artificial intelligence technologies and compassion in healthcare: A systematic scoping review

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Future of Empathy is Human-AI Hybrids

“The findings inform a reconceptualization of compassion as a *human-AI system of intelligent caring* comprising six elements: (1) Awareness of suffering (e.g., pain, distress, risk, disadvantage); (2) Understanding the suffering (significance, context, rights, responsibilities etc.); (3) Connecting with the suffering (e.g., verbal, physical, signs and symbols); (4) Making a judgment about the suffering (the need to act); (5) Responding with an intention to alleviate the suffering; (6) Attention to the effect and outcomes of the response. These elements can operate at an individual (human or machine) and collective systems level (healthcare organizations or systems) as a cyclical system to alleviate different types of suffering. New and novel approaches to human-AI intelligent caring could enrich education, learning, and clinical practice; extend healing spaces; and enhance healing relationships.”

Thank you.

Happy to take questions if there's time.