

Designing LLM chatbots for Digital Public Health: co-design with psychologists

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Abstract

Conversational user interfaces are increasingly positioned as scalable tools for digital public health. Yet usability and accessibility alone do not ensure appropriate care. Drawing on my position as a design researcher embedded in a medical and clinical psychology department, this position paper reflects on lessons learned from interdisciplinary work on LLM chatbots for mental health and health behaviour change. I highlight three design concerns that warrant further attention in HCI: the risk of applying psychological theories too rigidly in chatbot design; the need for clear system limits and escalation pathways in crisis situations; and the challenge of personalization beyond simple tailoring, including sensitivity to how users experience feedback, reminders, and goal-setting. I argue that LLM chatbots for digital public health should be designed as part of broader care ecosystems, in collaboration with both users and practitioners.

CCS Concepts

• **Human-centered computing** → **HCI design and evaluation methods**; **Ubiquitous and mobile computing design and evaluation methods**.

Keywords

large language models, co-design, participatory design, mental health, health behavior change, interdisciplinary

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1 Motivation and position

Conversational user interfaces (CUIs), especially those powered by large language models (LLM), are increasingly positioned as scalable tools for digital public health. They can provide timely information, support reflection, and offer low-threshold interaction outside formal care settings. However, usability and accessibility alone does not guarantee appropriate care.

My position is shaped by my role as a design researcher embedded in a psychology department, specifically, medical and clinical psychology. At the moment, we are exploring LLM chatbots for mental health and

for health behaviour change. Working closely with my colleagues has made it visible to me some design directions that warrant more attention from HCI researchers when developing LLM chatbots for digital public health. I will give three examples below.

First, a recurring concern psychologists have about HCI work is the way of applying theoretical frameworks from psychology when designing such systems. Take LLM chatbots for health behaviour change as an example, these chatbots usually operationalise behaviour change as a sequence of prompts, goals, reminders, and feedback. However, in practice, psychologists often work eclectically, and following theories strictly is considered to be “ineffective” and “suffocating”.

Second, LLM chatbots for digital public health must be designed with clear limits and escalation pathways. In crisis situations, such as a user saying, “I don’t want to wake up tomorrow,” psychologists warned that an AI system should not carry the responsibility of assessing the intent of the user alone. The design priority should be rapid connection to human support, transparent communication about the system’s role, and minimal friction in reaching crisis services or professionals. However, this transition is underdiscussed in HCI.

Third, personalization, but not in the narrow sense of tailoring message frequency or inserting a name. Psychologists highlighted that people differ in so many ways. For example, they differ in how they experience feedback. A reminder may feel supportive to one person and controlling to another. Feedback on an unachieved goal may motivate one user and shame another. It is hence an interesting HCI challenge to explore how to identify all the key preferences of a user at the beginning of the conversation and refine the conversation based on new insights about the preferences of the user along the way.

These points lead to my position: LLM chatbots for digital public health should be designed as part of the care ecosystem, and in collaboration not only with users but also with practitioners. The roles of practitioners will change with the development of LLM chatbots for digital public health, yet the practitioners need to be in the loop. For example, the LLM chatbots may function as reflective companions, preparation tools before consultations, or bridges to professional and social support. For the workshop, I hope to contribute a design research perspective grounded in interdisciplinary practice. I am particularly interested in exploring ongoing research in this field and connecting with researchers having shared interests to work together.

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