

Survey on the Applicability and Effectiveness of AI-Powered Automated Drug Recommendation Kiosks

Sonya Falahati, Morteza Alizadeh, and Mohammad R. Salmanpour, Ph.D.

Description

This survey aims to evaluate the applicability and effectiveness of AI-powered drug recommendation kiosks in healthcare settings. The survey is designed to gather insights from healthcare professionals regarding the usability, accuracy, safety, and scalability of such systems. Your responses will help us understand the potential benefits, challenges, and ethical considerations associated with implementing AI-driven kiosks for medication recommendations. The survey is divided into seven sections, covering demographics, usability, clinical reliability, safety concerns, implementation challenges, comparisons with traditional healthcare services, and ethical considerations. Your feedback is invaluable in shaping the future of AI-powered healthcare technologies. Thank you for participating!

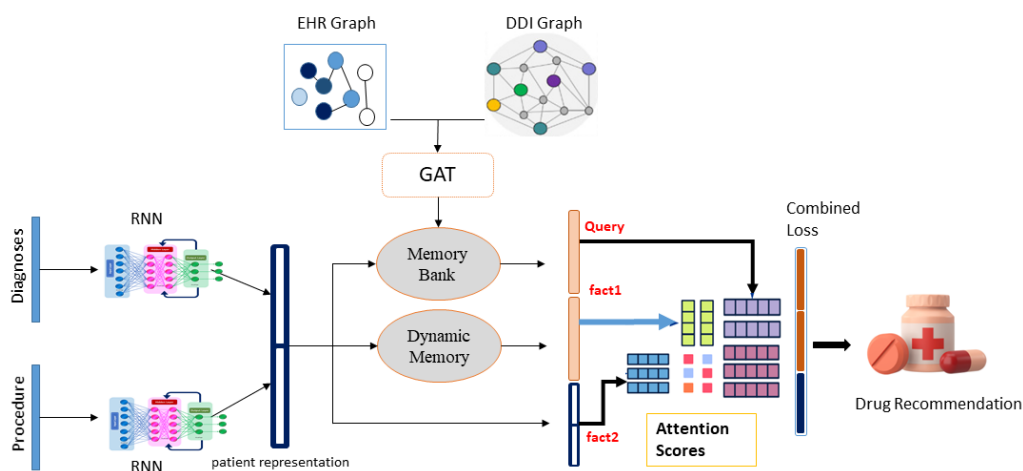


Figure. 1. Architecture of the enhanced medication recommendation system showing: (left) EHR processing through diagnosis RNNs, (center) DDI graph encoding via GAT layers, and (right) memory fusion through MHCA. The attention mechanisms (orange) enable dynamic weighting of patient history and drug interactions for clinically relevant recommendations.

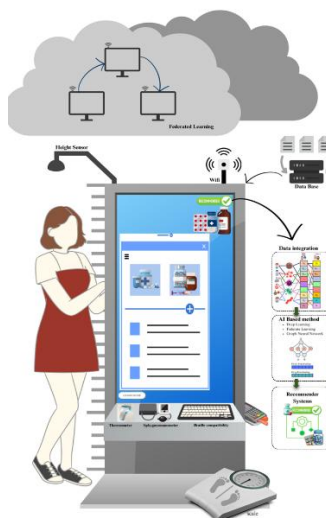


Figure 2. HERMES Kiosk Architecture. The HERMES kiosk architecture integrates advanced AI models (GAT and MHCA) for personalized OTC medication recommendations, leveraging federated learning for privacy and real-time DDI checks for safety. Designed for high-traffic public spaces, it includes multilingual support, accessibility features, and a health education library to enhance public health access and literacy.

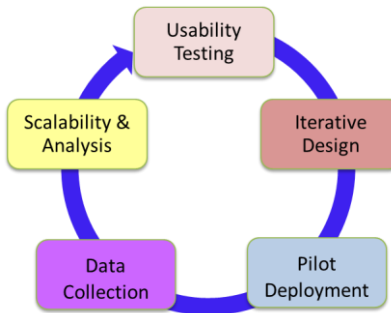


Figure 3. The diagram illustrates the 5-phase implementation methodology: (1) Usability Testing with diverse demographic groups, (2) Iterative Design cycles for interface optimization, (3) Pilot Deployment in high-traffic public locations, (4) Performance Evaluation through quantitative and qualitative data collection, and (5) Scalability Analysis comparing system performance against traditional healthcare delivery methods.

Starts

Section 1: Demographics & Professional Background

1. What is your medical specialty?
 - ☒ General Practitioner (GP)
 - ☐ Pharmacist
 - ☐ Internist
 - ☐ Emergency Medicine
 - Other (please specify):
2. How many years of experience do you have in medical practice?
 - ☐ 0-5 years
 - ☐ 6-10 years
 - ☐ 11-20 years
 - ☐ 21+ years
3. Have you previously used or interacted with AI-powered healthcare technologies?
 - ☐ Yes
 - ☐ No
4. Are you familiar with AI-driven drug recommendation systems?
 - ☐ Yes
 - ☐ No

Section 2: Usability & Perceived Effectiveness

5. How useful do you think an AI-powered kiosk for drug recommendations would be in **public spaces** (e.g., pharmacies, hospitals, malls)?
 - ☐ Very useful
 - ☐ Somewhat useful
 - ☐ Neutral
 - ☐ Not very useful
 - ☐ Not useful at all
6. What do you think are the **key benefits** of an AI-powered kiosk for drug recommendations? *(Select all that apply)*
 - ☐ Reducing workload for healthcare providers
 - ☐ Providing quick drug recommendations for minor conditions
 - ☐ Improving patient adherence to medications
 - ☐ Enhancing access to healthcare in remote areas
 - Other (please specify):

7. How effective do you think AI-powered kiosks would be in **empowering patients to manage minor health conditions independently**?
- ☐ Extremely effective
 - ☐ Moderately effective
 - ☐ Somewhat effective
 - ☐ Not effective
8. Do you think AI-powered kiosks could help **reduce unnecessary doctor visits** for minor ailments?
- ☐ Yes, significantly
 - ☐ Yes, but only for specific cases
 - ☐ No, they won't significantly reduce doctor visits
9. Could AI kiosks improve **medication adherence** (i.e., ensuring patients take the correct medications as prescribed/recommended)?
- ☐ Yes, significantly
 - ☐ Somewhat, for forgetful patients
 - ☐ No, adherence is a human behavior issue
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Section 3: Accuracy & Clinical Reliability

10. How would you rate the **accuracy** of AI-powered drug recommendation kiosks in providing appropriate **Over-The-Counter (OTC)** medication suggestions?
- ☐ Highly accurate, close to expert-level
 - ☐ Moderately accurate, but some errors
 - ☐ Somewhat accurate, but needs improvement
 - ☐ Not very accurate, too many incorrect suggestions
 - ☐ Not accurate at all, unreliable
11. Based on your medical expertise, how often do you think AI-powered kiosks would make **clinically appropriate recommendations**?
- ☐ Almost always (90%+ correct recommendations)
 - ☐ Most of the time (70-89% correct recommendations)
 - ☐ Sometimes (50-69% correct recommendations)
 - ☐ Rarely (30-49% correct recommendations)
 - ☐ Almost never (Less than 30% correct recommendations)
12. Do you believe AI-powered kiosks can identify and recommend **appropriate alternative medications** if a patient has allergies or contraindications?
- ☐ Yes, they are capable of handling alternative suggestions well
 - ☐ Sometimes, but only for common cases
 - ☐ No, AI lacks sufficient knowledge for safe substitutions
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Section 4: Clinical Safety & Risk Concerns

13. What are your primary **concerns** regarding AI-powered drug recommendation kiosks? (*Select all that apply*)
- ☐ Accuracy of recommendations
 - ☐ Risk of incorrect self-medication
 - ☐ Lack of real-time human oversight
 - ☐ Ethical and privacy issues related to patient data
 - ☐ Patient over-reliance on AI instead of seeing a doctor
 - Other (please specify):

14. Do you think real-time **Drug-Drug Interaction (DDI) checks** in AI-powered kiosks can improve patient safety?
- ☐ Yes, significantly
 - ☐ Somewhat
 - ☐ Neutral
 - ☐ Not really
 - ☐ No, not at all
15. Do you think AI-powered kiosks should be restricted from recommending medications for **high-risk patients** (e.g., pregnant women, children, elderly, or those with chronic diseases)?
- ☐ Yes, AI kiosks should warn and direct them to a doctor
 - ☐ No, but kiosks should include disclaimers
 - ☐ No, if the recommendations are accurate
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Section 5: Implementation & Scalability

16. How valuable do you think it would be for an AI-powered kiosk to **connect users with urgent medical conditions** directly to a hospital or an online doctor visit?
- ☐ Extremely valuable
 - ☐ Very valuable
 - ☐ Somewhat valuable
 - ☐ Not very valuable
 - ☐ Not valuable at all
17. In which of the following **urgent situations** do you think the kiosk should connect users directly to a hospital or online doctor visit? (*Select all that apply*)
- ☐ Chest pain or suspected heart attack
 - ☐ Severe allergic reactions (e.g., anaphylaxis)
 - ☐ Difficulty breathing or suspected asthma attack
 - ☐ High fever with other concerning symptoms
 - ☐ Suspected stroke symptoms (e.g., facial drooping, slurred speech)
 - ☐ Severe abdominal pain
 - Other (please specify):
18. Do you think an AI-powered kiosk should inform users about the **potential side effects** of recommended drugs?
- ☐ Yes, always—it's essential for patient safety and informed decision-making
 - ☐ Yes, but only for common or serious side effects
 - ☐ No, this could cause unnecessary anxiety or confusion for users
 - ☐ No, side effect information should only be provided by a doctor or pharmacist
19. How should the kiosk communicate **side effect information** to users? (*Select all that apply*)
- ☐ Display a list of common side effects on the screen
 - ☐ Provide a printed handout with detailed side effect information
 - ☐ Offer an option to hear side effect information via voice commands
 - ☐ Include a disclaimer advising users to consult a doctor for further clarification
20. In what medical settings do you think an AI-powered drug recommendation kiosk would be **most beneficial**? (*Select all that apply*)
- ☐ Pharmacies
 - ☐ Emergency Rooms
 - ☐ Clinics & Hospitals
 - ☐ Rural Healthcare Centers
 - ☐ Airports/Transportation Hubs

Other (please specify):

21. What additional features should an AI-powered drug recommendation kiosk include to enhance its **effectiveness**? *(Select all that apply)*

- ☐ Direct integration with Electronic Health Records (EHRs)
- ☐ Telemedicine consultation with a licensed doctor
- ☐ Support for prescription medications (not just OTC drugs)
- ☐ Real-time alerts for high-risk drug interactions
- ☐ Multilingual support for diverse populations

Other (please specify):

22. What are the biggest challenges in **scaling AI-powered kiosks** across different healthcare systems? *(Select all that apply)*

- ☐ High initial investment & maintenance costs
- ☐ Regulatory approval & compliance challenges
- ☐ Accuracy & AI model improvements
- ☐ Data privacy & cybersecurity concerns
- ☐ Resistance from traditional healthcare providers

Section 6: AI vs. Traditional Healthcare Services

23. Compared to a **human pharmacist**, how effective do you think an AI-powered kiosk is at providing OTC medication recommendations?

- ☐ Just as effective as a pharmacist
- ☐ Nearly as effective, but still needs human verification
- ☐ Somewhat effective, but lacks personalization
- ☐ Not effective, humans are irreplaceable

24. Would you trust an AI-powered kiosk more than **online symptom checkers** (e.g., WebMD, Google search, chatbot-based medical apps)?

- ☐ Yes, AI kiosks are more reliable
- ☐ Maybe, depending on the technology
- ☐ No, AI kiosks are just as unreliable as symptom checkers

25. Do you believe AI-powered kiosks will eventually **replace human pharmacists** for OTC medication recommendations?

- ☐ Yes, AI will replace pharmacists in this role
- ☐ No, but AI will assist them significantly
- ☐ No, pharmacists should always be involved

Section 7: Ethical & Privacy Concerns

26. Do you think AI-powered kiosks should **require user consent** before collecting and analyzing health data?

- ☐ Yes, explicit user consent should always be required
- ☐ Yes, but only for sensitive data
- ☐ No, if the data is anonymized
- ☐ No, the kiosk should not collect any personal data

27. Do you think AI-powered kiosks should be regulated by **health authorities** (e.g., FDA, WHO) before deployment?

- ☐ Yes, they should undergo strict regulatory approval
- ☐ Yes, but only for high-risk medical applications
- ☐ No, they should be self-regulated by developers

Final Open-Ended Question

28. What are your biggest concerns or suggestions for improving AI-powered kiosks for medication recommendations? (*Open-ended response*)

End of Survey