

“It's not even close to being ready to replace anything”: the perception of AI use in youth mental health services

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“It's not even close to being ready to replace anything”: the perception of AI use in youth mental health services

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Abstract

Background: Artificial intelligence (AI) technology has made significant advancements in healthcare. A key application of AI in mental health is the use of AI-powered chatbots; however, empirical evidence on their effectiveness remains limited.

Objective: This study explored stakeholder perceptions of integrating AI in youth mental health services, focusing on its potential benefits, challenges, usefulness, and regulatory implications.

Methods: This qualitative study utilized semi-structured in-depth interviews with 23 mobile health stakeholders, including youth users, service providers, and non-clinical staff from an integrated youth service network. We used an inductive approach and thematic analysis to identify and summarize common themes and sub-themes.

Results: Participants identified AIH's potential to support education, navigation, and administrative tasks in healthcare, as well as to create safe spaces and mitigate health resource burdens. However, they expressed concerns about the lack of human elements, such as empathy and clinical judgment. Key challenges included privacy issues, unknown risks from rapid technological advancements, and insufficient crisis management for sensitive mental health cases. Participants viewed AIH's ability to mimic human behavior as a critical quality standard and emphasized the need for a robust evaluation framework combining objective metrics with subjective insights.

Conclusions: While AIH has the potential to improve healthcare access and experience, it cannot address all mental health challenges and may exacerbate existing issues. Even AIH can complement less-complex services, it cannot replace the therapeutic value of human interaction at this time. Co-design with end-users is critical for successful AI integration. Robust evaluation frameworks and an iterative approach to build a learning health system are essential to refine AIH and ensure it aligns with real-world evolving needs.

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Original Manuscript

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Discussion: While AIH has the potential to improve healthcare access and experience, it cannot address all mental health challenges and may exacerbate existing issues. Even AIH can complement less-complex services, it cannot replace the therapeutic value of human interaction at this time. Co-design with end-users is critical for successful AI integration. Robust evaluation frameworks and an iterative approach to build a learning health system are essential to refine AIH and ensure it aligns with real-world evolving needs.

Introduction

Over the last decade, artificial intelligence (AI) has made significant breakthroughs in healthcare.¹ More advanced AI technologies, such as machine learning,² natural language processing,³ and predictive analytics,⁴ have increasingly been introduced to diverse healthcare settings to support diagnostic capabilities, individualized treatment planning, administrative and clinical workflow development, and patient monitoring.⁵ The application of AI to the field of youth mental health is in an exploratory phase. The current youth mental health landscape is often critiqued as fragmented and insufficient to meet the access and care needs of diverse youth.^{6,7} AI offers a promising solution to augment existing services, with its low barriers to entry and resource-efficient nature, capable of enhancing existing services by providing real-time, data-driven support.⁸ Given that youth (defined here as 12-24 years) are generally more receptive to new technologies than other age groups,⁹ they are uniquely positioned to lead the adoption of AI-based mental health services. The integration of AI into these services not only has the potential to revolutionize care delivery but also to improve health outcomes and experiences, promote population health, reduce costs, and enhance both provider satisfaction and health equity, aligning with the goals of the Quintuple Aim.¹⁰

Despite rapid advancements in this technology, there is a significant gap in evidence on how these AI innovations translate into successful AI for health (AIH) implementations. Perceptions of AI in healthcare remain mixed,⁸ especially in areas where AI is increasingly used for digital health interventions, remote monitoring, and preventive care.¹¹⁻¹³ Stakeholders such as youth users, healthcare providers, technology developers, and policy-makers hold pivotal roles in shaping the acceptance, regulation, and application of these technologies.¹⁴ Their perspectives are critical in

ensuring AI solutions are tailored to real-world needs of youth mental health services, rather than just performing in idealized experimental settings. This gap highlights the urgent need to engage with these stakeholders, whose insights are essential for fully understanding both the potential and the limitations of AI in transforming youth mental health care.

This paper explores the perceptions of key stakeholders on the integration of AI health (AIH) into youth mental health services. Specifically, we examine the 1) benefits and challenges of AIH integration, 2) perceived usefulness of AIH, and 3) strategies for evaluating and regulating AIH. By addressing these critical questions, the study sheds light on the factors influencing AI adoption in mental health care and offers actionable recommendations for using AI to improve care quality and accessibility for youth.

Methods

Study Design

This study employed a qualitative research design using semi-structured in-depth interviews to explore stakeholder perceptions of AIH. We included three priority participant groups (youth, service providers, and non-clinical staff) from an integrated youth service (IYS) network call Foundry that actively utilizes an online mobile health (mHealth) platform (Foundry BC App) to deliver care. Although Foundry does not currently offer AIH services, it has a dedicated mHealth team with experience in innovative health technologies and insight into how AIH could be integrated into its existing services.

Study Sample

Youth Users

Youth inclusion criteria required participants to be aged 16 to 24 (those 15 and younger were excluded due to the need for parental consent), able to communicate in English, and have used mHealth to access services in the past year. Recruitment was conducted through recurring social media posts. To capture diverse experiences, no restrictions were placed on the frequency or purpose of mHealth use.

Service Providers

For this group, we recruited IYS service providers (e.g., counselors, social workers, primary care providers) who have used mHealth to deliver care to youth (e.g., virtual youth counseling, remote info sessions, online peer support groups). Most service providers were purposively recruited from Foundry centers that fully integrate mHealth into their clinical service workflows.

Non-clinical Staff

For this group, we recruited technology and implementation experts at Foundry who were engaged in the design, development, and implementation stages of the mHealth platform. We reached out to the Foundry communications team to share information about the study opportunity to qualified non-clinical mHealth staff who met the inclusion criteria. This process was used to ensure confidentiality of staff so they can make an unbiased decision to participate in the interviews.

Data Collection

We collected qualitative data through 23 participant interviews. We designed open-ended questions based on participant's own experience with AI and AIH. The major guiding questions were

constructed based on Technology Acceptance Model (TAM) that mainly explored perceived usefulness and ease of use of technology.^{15–17} The semi-structured interview format allowed participants to elaborate on topics of interest beyond the guiding questions. We recorded and transcribed all interviews, taking notes during the sessions to aid in later data cleaning processes. Each participant was coded with a pseudonym for confidentiality purposes and anonymous presentation of results.

Data Analysis

We used inductive thematic analysis^{18,19} to identify, analyze, and report patterns and themes in interview data from three stakeholder groups.²⁰ Researchers XD and SB used an iterative approach to review the themes, ensuring they accurately represented the coded data and the overall dataset content. After identifying themes for each research question, authors discussed and selected the most representative examples from the transcripts for each theme, presenting in-depth quotes alongside the group name and a pseudonym for each participant.

Results

Participants

A total of 23 people participated in this study, with 12 youth users, 6 service providers and 5 non-clinical staff who were deeply involved in the development of the mHealth services across the IYS network. Table 1 summarizes the demographic characteristics reported by the participants. Most participants reported that they have used AI technology, mostly ChatGPT, for something in their lives including school and works. Two youths reported they have used Snapchat AI for health-related counselling purposes. Most participants provided diverse and distinct insights on their perception of AIH integrated youth services, ranging from “*it’s scary and creepy*”, “*I am skeptical*” to “*it has potential*” and “*it is a positive trend*”. Only one participant in the youth group stated that they have never thought about using AI for health-related service and did not provide much information.

Table 1. Summary of demographic description of three groups

	Youth (n=12)	Service providers (n=6)	Non-clinical staff (n=5)
Age (M, range)	20.4, 18-24	32.8, 23-45	35.6, 29-46
Self-reported gender (n)			
Woman	10	4	3
Man	2	1	1
Non-binary	-	1	1
Currently using AI in life n (%)	11 (91.7%)	5 (83.3%)	4 (80%)
Years of professional experience (M, range)	-	4.2, 1.5-7	14.1, 8-23.5

Through one-on-one interviews, participants shared their in-depth understanding of the current and future role of AI, specifically the integration of generative chatbot services in healthcare based on their personal experiences. Thematically analyzed qualitative data will be presented in this result section following the three research questions proposed: **perceived benefits and challenges of AIH, intended usefulness of AIH, and how do we evaluate AI for regulation.**

RQ1. Perceived benefits and challenges of AIH

Perceived benefits of AIH

Create safe environment

When youth accessed virtual care, there are unique preferences for everyone. Some expect a real person on the other end of the screen, some youth reported they have strong fear of judgement, stigma, and social anxiety when facing therapist. These participants reported the lack of human interaction is beneficial in their help-seeking journey. This consideration can be particularly crucial in vulnerable groups as the LGBTQIA community reported facing additional barrier when accessing mental health services.

"The wall is my own struggling to trust. It's just my own wall that I don't want anybody to know what I'm struggling with. Because, like you say, it's an AI, so it's not a person who will know my struggle." Youth, July.

"It feels wrong to suddenly question their attraction to the same sex, and I had a young person said that to me, 'I'm so embarrassed I could never tell my friends, I could never tell my parents, I could never tell anyone but I needed to tell somebody.'" Non-clinical staff, Sarah.

Mitigate health resources burden

Participants reported AIH is naturally perceived as affordable, resourceful and available 24/7. It has the ability to provide immediate responses they need without having to go through complicated registering and waiting process compared to how you usually access a traditional therapy session. Some service providers optimistically suggested that AI could easily replicate certain therapeutic approaches that are relatively straightforward, such as the Solution-Focused Brief Therapy (SFBT) model and ADHD coaching. They proposed that AI could be designed to deliver appropriate responses at the right time. Participants suggested that if AIH can effectively and accurately handle less complex cases, it could alleviate the current shortage of healthcare resources. This would enable the system to dedicate more focus and resources to addressing higher-intensity situations.

"Our clinical staff who worked at a help line reported that mostly people just want to talk to somebody, and who just feel like they need maybe some guidance or someone to listen to them, and this is the part that can benefit from a well-trained AI model." Service provider, Milo.

Perceived challenges of AIH

Missing human element

As all participants have their AI experiences with generative AI chatbot, they largely envision using ChatGPT-like chatbots for therapeutic purposes. While the tech team showed confidence that AI has the capability of feeding the correct answer, most clinical staff and youth suggested the value of talking to service providers is building empathetic relationships and connecting with the community. Current AIH lacks the capability to understand client facial cues, tones, raised voices, or body language and to provide human-like empathetic responses. (*"You know they are crying, AI doesn't."* Non-clinical staff, Allison.) This perspective is particularly crucial when it comes to trauma counseling, crisis counseling, and suicide cases since most participants stated AIH lacks the capacity to handle extreme situations that require extra considerations and empathy. Moreover, both youth and service providers shared from their counseling experiences that clients often come in feeling vulnerable and seek to share that sense of vulnerability with another human being present in the same space. Sometimes clients are not here to hear the right words, they are here to feel heard and supported – *"But you are not able to feel that from any robots."* Youth, John.

"Your counselor is a human, they have human emotions, they make mistakes, they say weird things, too, and it's very reassuring to know that the person we're speaking with, despite being a

professional counselor, they're also just living the human experience. Even if a counselor says the wrong thing, they were cursing with you that AI will never do, but you still know that they are there to support you.” Youth, Rice.

In addition to the lack of empathy, service providers also reported that AIH lacks the clinical judgement ability and the power of uniqueness so it is not personalized at all when facing different clients.

“Two people could have the same issue. But then with an AI, if it's given the same prompt, it would probably have the same answer for both. But I feel like human therapist can change it up per person or being able to read the conversation better and make inferences during session.” Youth, Sisi.

Worries about technology

Participants from all three groups expressed concerns about the feasibility of implementing AIH services, particularly regarding the ability of health services to meet technological demands and address the evolving needs of youth. Participants also discussed equitable access to technology as well. Some participants noted that it is crucial to recognize there are rural and remote communities that do not have access to technology (e.g., Wi-Fi), and some are not comfortable accessing internet and remote services. While the AIH has a promising future, participants acknowledge that it is not the solution for every community, and the needs of each community need to be carefully scoped. As one participant noted,

“It could be more harmful than good to do that (implement AIH) in communities where it's does not really aligned with how they live.” Non-clinical staff, Lulu.

Participants also identified confidentiality and privacy as key concerns regarding the logistics of AIH. While these issues are common in all technology-based services, participants noted that they are particularly challenging in AIH because users often lack a clear understanding of who or what is managing the information they input into the “black box.”

“Will that be private, or will it go through some counselors I don't know or just to Google?” Youth, July.

Some participants also perceived that AI in general can lack effectiveness and reliability, which is critical for delivering evidence-based services to youth accessing mental health services. Some perceived AIH as “impractical” and some participants reported highly negative experiences with AI chatbots, leading to a strong reluctance to see AI integrated into their healthcare experiences.

“It's frustrating enough dealing with something as simple as Amazon customer service, let alone relying on AI for health-related matters. Anytime I can tell I'm talking to a robot, my first thing is to figure out how to get to the human.” Non-clinical staff, Allison.”

Risks

In addition to the general concerns toward using technology, participants also proposed more serious risks associated with integrating AIH to healthcare system. Some stakeholders believed that at this stage, “AIH has more risks than what current knowledge can anticipate” Service provider, Jacob.

“I don't think people like the idea of getting therapy from a program.” Service provider, Olivia.

Participants noted that unregulated AI tools can be maliciously trained, spread misinformation, and, more critically, lack empirical research evidence on the negative consequences resulting from such misconduct. All participant groups emphasized that each user interacts with AIH in unique ways, making it difficult to predict the specific information these tools provide.

It is important to note that nearly all participants expressed concerns about how difficult it can be to manage crisis situations with AIH. This was identified as the most significant worry and the primary challenge when integrating AIH into youth mental health services. Participants specifically stressed the importance of exercising extreme caution with AI tools, highlighting the risk of these tools delivering triggering or harmful content that could lead to self-harm or suicide.

“I worked with a couple of projects that was using AI to train particular counseling or training

models. Right now I'm suspicious because you can make AI mad at you. I remember this...not ChatGPT, but a while ago I managed to convince the AI to tell me to kill myself and sent that back to somebody and ...this is a no." Non-clinical staff, Allison.

Participants expressed a desire for AIH to be accompanied by comprehensive crisis management plan that addresses the handling of sensitive information while prioritizing ethical and legal considerations. Finding a balance between data security and effective crisis management was described as a significant challenge for all groups.

"To do a suicide rescue with somebody on AI is intense. Do you need to check for other things like do they have the modality? Do they have a plan? Is the plan imminent? So where is the line to necessarily get other people involved? If it looks like they're at a high risk for suicide, at that point somebody would need to know? But also there are also health laws there, somebody else would never be able to involve." Service provider, Flora.

RQ2. Current intended usefulness of AIH

Participants expressed three key functions where AIH could play to advance youth mental health service innovation.

Education

Firstly, based on participant experiences with AI tools, participants felt that AI can serve as an effective educational resource to support the learning of health-related knowledge. AI has the ability to answer scientific questions without waiting times (e.g., "What is anti-depressant?") and can provide tailored materials for diverse audiences, such as explaining medical concepts to youth in plain, accessible language. Additionally, it can update both healthcare providers and recipients with the latest knowledge and skills that are personalized to their specific needs. AI can help fostering a more informed and knowledgeable support system and bridge gaps in health literacy.

"If you're in need of realistic advice that you don't really need an appointment for, maybe AI can help. If I can get the solution right away, then (using AI to seek help) wouldn't be a concern for me." Youth, Kate.

Navigation

Secondly, participants reported that AI can be a navigation tool that direct users to the correct place to seek help. Participants suggested that AI chatbots can be used as screening tools to assist with identifying the type of support they need based on their symptoms or concerns and direct them to the suitable healthcare providers, facilities, or online resources. Participants proposed that AI can be trained with the stepped care model²¹ and help triage users in specific communities by recommending whether they should seek immediate emergency care, schedule an appointment with a specialist, or explore self-management options. By navigating users across the complex healthcare system, AI has the potential to increase access to care, minimize delays, and mitigate stress for individuals in need of accessible services, especially those vulnerable and marginalized groups including youth.

"I can definitely see to use it like find me a center near me, 'okay, you have one x kilometers away', or 'here is a substance use support station for you' and it would be cool. But I'm very against the idea of AI being my counsellor." Youth, Rachel.

Admin

Lastly, participants agreed that other than using AI for accessing healthcare, AIH has extensive value for assistive health administration purposes. Many youth users, especially those whose first language is not English, suggested that AI services can help overcome language barriers by accurately expressing their thoughts in their native language, often performing better than traditional translation

tools. Service providers also highlighted that AI can handle administrative tasks like appointment scheduling, billing, and managing patient records. This reduces the workload for healthcare staff, allowing them to focus more on providing personalized care. Additionally, AI can analyze health data to identify patterns in service use, track both short-term and long-term patient records, and support decision-making at the organizational level.

“You can have AI store all the data and generate tables for like... what percentage of people accessed the app this month, and you will know the maintenance and other tech efforts you will need in the future.” Non-clinical staff, Allison.

RQ3. Evaluation and regulation of AIH in youth mental health

All participants highlighted the importance of assessing the quality of care delivered by AIH and identifying effective regulatory measures to maximize its benefits for youth mental health. At the beginning of this section, it is important to highlight that the prevailing view among stakeholders is that the success of AI-based healthcare services largely depends on how well AI can mimic human behavior. Many emphasized that AIH should incorporate human-like traits, especially empathy, to build trust and gain acceptance. The importance of having diverse personalities in AI was repeatedly emphasized by different participants, with some suggested that users should be able to choose the different personality of AI based on the specific service they are using. Stakeholders agreed that aligning AI with these desired qualities is key to its effective integration into youth mental health care.

“I would want to see whatever I can see in a real person, then it would actually be the same thing. If they didn't have this, then I wouldn't be satisfied. I want AI to be an active listener, so should be empathy! I want the AI chat to have empathy. I want it to be non-judgmental. I want the chatbot to challenge me in my thoughts and my patterns like a real therapist.” Non-clinical staff, Alex.

Building on the overarching standard proposed by participants that AI services should mimic human behavior, two major categories of evaluation criteria were identified: objective measures based on quantifiable metrics, and subjective assessments based on user experiences.

The quality of care provided by AIH can be objectively assessed by tracking changes in symptom severity, using tools like the GAD-7 and PHQ-9 scales to measure anxiety and depression levels in youth before and after the intervention. In addition to symptom severity, participants suggested other measurable factors that could be part of a comprehensive evaluation framework. These include the percentage of accurate information provided, response times, frequency of follow-up interactions, the number of successful referrals to appropriate resources, and even the reduction in years of disease burden at the population level.

“Is it cutting down on the number of people who then go on to book an appointment? How effective it is in achieving individual health goals? Did it convince youth to take the next step to see a specialist? You can calculate some efficiency percentage here.” Non-clinical staff, Jojo.

The other perspective is that you can measure the subjective individual user experience and level of satisfaction while using AIH. Participants noted that lived experiences are difficult to quantify and should not be categorized, as they often provide the best reflection of the unique perspectives, emotions, and challenges individuals encounter, shaped by their personal and cultural backgrounds. This part of the evaluation can include highly subjective feedback, such as: “Did I feel heard and understood? Did I receive the response I needed from this chat session? Did I feel empathy and validation? Did I feel safe talking to AI? Did I feel supported? Was the level of service consistent across sessions? Was I able to reach out to the kind of service I need?”

“When I was type something on Snapchat, and then it gives me something back... like a huge paragraph, and I read over, and I'm like, OH, you just completely got it in a wrong way. So I don't even have the energy to continue and to write to AI ‘you're wrong’. So for me it did not give like a really good response and it was a waste of my time.” Youth, Sunny.

Discussion

The integration of artificial intelligence (AI) into youth mental health services presents both opportunities and challenges. This study explored the perceptions of mHealth stakeholders who are already familiar with mHealth services, offering critical insights into the benefits and challenges associated with integrating AI for Health (AIH) in a real-world setting.

Previous evidence have highlighted the potential of AI to address key barriers in healthcare, such as workforce shortages and financial constraints, by offering data-driven mental health interventions.^{1,22} Some research has explored the use of AI in clinical decision-making, such as optimizing drug dosages and creating personalized treatment plans.^{23,24} However, regarding using AIH to support mental health services, The American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders (DSM) includes over 450 distinct definitions²⁵ of mental disorders and current research does not have empirical evidence to support the use of AIH in all fields of mental health services. Meanwhile, advancements in health technology often fail to engage end-users effectively and neglect their lived experiences and needs.^{14,23} While existing evidence showcases the capabilities of AI in healthcare, there is limited exploration of how service recipients perceive its use. This study investigated stakeholder perceptions, emphasizing the role of AIH, particularly AI chatbots, in supplementing traditional services. A key challenge identified AI's inability to replicate human empathy, which is especially crucial in critical situations requiring nuanced therapeutic responses. This aligns with scholarly views that AI cannot convey the essence of human empathy, which remains a contentious aspect of AIH integration.²⁶ Another recurring concern in this study was the fear of AI mishandling sensitive data and spreading misinformation, particularly in high-risk situations for youth. Literature underscores the importance of service providers acknowledging this risk and developing adaptive strategies for practice.²⁷ Some researchers have proposed using a "supervisor AI" to identify and correct misinformation, particularly on social media, but the feasibility of integrating such systems into AIH remains uncertain.^{28,29} Lastly, the study highlighted the need to expand evaluation criteria for AIH. While traditional measures, such as symptom reduction, remain important, there is increasing recognition of the complexity involved in measuring AI health tools.^{30,31} Participants argued that a more holistic approach is necessary, focusing on evaluating meaningful, subjective recovery experiences, rather than solely relying on quantitative metrics.

Future Endeavors

Beyond the three perceived functionalities of AIH from study results, its effectiveness in healthcare can be enhanced by strategically integrating AIH applications with established care models, such as the stepped care model. This approach allows AI to manage lower-complexity cases, enabling clinicians to focus on high-intensity, complex cases in youth mental health, thereby improving overall treatment outcomes. Moreover, to build trust and encourage widespread adoption in youth mental health, AIH must prioritize transparency, especially regarding data management and crisis intervention. Establishing robust ethical guidelines and regulatory frameworks is crucial to ensure AI safety and address any potential risks. Most importantly, even as the technology matures, AIH solutions must be co-designed with end-users, ensuring they are tailored to meet their needs and foster trust in the healthcare system. Given the current limitations of AIH integration reported by participants, there is the need for the healthcare systems to adapt iteratively to evolving needs of

users, especially when it comes to vulnerable groups like youth who usually face more barriers and challenges when accessing care. The future development of AIH should also prioritize continuous feedback and foster collaborative learning environments involving all stakeholders. This includes groups represented in this study, as well as others not recruited such as organizational leaders and policymakers. This aligns with the call for a learning health system³² that supports long-term stakeholders engagement rather than isolated, project-based approaches to break down silos among partners and to foster collaboration across AIH design, development, and implementation stages. Finally, it is crucial to recognize that while participants in this study majorly believed the current healthcare system is not yet prepared to fully integrate AI services, these perceptions are likely to evolve as technology and system development progress. As such, the establishment of a learning health system could provide the ongoing feedback and continuous improvement required to effectively integrate AIH, ensuring its adaptation and growth in alignment with the needs of youth mental health providers, service users, and technology developers.

Limitations

For this qualitative study, the interview data came from a small sample within one youth service network, limiting the generalizability to broader contexts. Participants primarily shared perceptions of AIH integration based on their personal AI experiences, as they had limited direct experience with implemented AI-based health tools in a clinical youth mental health setting, which may affect the depth of their insights.

Conclusion

This study underscores both the promising potential and significant challenges of integrating AI into youth mental health services. AI tools have the capacity to be used for education, navigation, and administration purposes. AIH can help create accessible environments and alleviate the burden on healthcare resources, yet its limitations cannot be overlooked. These include the unknown risks associated with current AI technology, the absence of essential human elements in care, the lack of effective crisis management plans, and the absence of a comprehensive regulatory framework for its integration into mental health systems. Additionally, there is a pressing need to develop a robust evaluation framework and establish ethical oversight to ensure AIH can adapt to the evolving needs of youth mental health services. Moving forward, it is critical to focus on building a learning health system for continuous improvement that encourages collaboration, ensuring AIH solutions are effective, equitable, and sustainable for future generations.

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