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Actual Use of AI Mental Health Chatbots: A Conceptual Framework Integrating the Health Belief Model and Innovation Resistance Theory

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Abstract

AI mental health chatbots have emerged as a promising means of extending access to mental health support, yet their availability does not necessarily translate into actual use. Existing research has largely focused on technological characteristics, intervention effectiveness, usability, user experience, and adoption intentions, with less attention to how health-related beliefs and innovation resistance jointly shape actual use behavior. This conceptual paper proposes an integrated framework combining the Health Belief Model (HBM) and Innovation Resistance Theory (IRT) to explain the actual use of AI mental health chatbots. The framework incorporates four health-related constructs from HBM—perceived threat, perceived benefits, cues to action, and self-efficacy—and five innovation resistance barriers from IRT—usage, value, risk, tradition, and image barriers. Nine theoretical propositions are developed to specify their expected relationships with actual use behavior. By bringing health-related judgments about taking action together with a multidimensional account of resistance to AI as a support modality, the framework offers complementary perspectives for understanding actual use in mental health support contexts.

Keywords: AI Mental Health Chatbots, Actual Use Behavior, Health Belief Model, Innovation Resistance Theory, Digital Mental Health

Introduction

Mental health problems have become a major global public health concern, with continuing effects on individual well-being, social functioning, and quality of life. According to the World Health Organization, more than one billion people worldwide are affected by mental health conditions, with anxiety and depressive disorders among the most common and imposing a substantial burden on individuals and socioeconomic development (World Health Organization, 2025). However, as the demand for mental health support continues to grow, access to professional mental health services remains constrained by shortages of trained professionals, high service costs, unequal distribution of resources, and barriers to help-seeking, making it difficult for some individuals in need of psychological support to obtain timely and appropriate care (Minerva & Giubilini, 2023; Shahwan et al., 2025; Wang et al.,

2025). These challenges highlight the practical importance of exploring new forms of support that can complement conventional mental health services.

Recent advances in generative artificial intelligence (AI), natural language processing, and large language models have led to the growing use of AI chatbots in health consultation, information provision, and psychological support (Huynh et al., 2026). In the mental health field, AI chatbots are increasingly viewed as a potential complement to conventional services because of their round-the-clock availability, anonymous interaction, accessibility, and scalability (Casu et al., 2024; Kuhail et al., 2025). Through natural language interaction, these systems can provide basic emotional support, mental health information, self-management guidance, and preliminary psychological support (Bond et al., 2023; Khawaja & Bélisle-Pipon, 2023; Kuhail et al., 2025).

Despite their potential, the availability and functional advantages of AI mental health chatbots do not necessarily translate into actual use for mental health support. Alongside evidence of their feasibility and potential value, previous research has identified limited user engagement, inadequate personalization, privacy and security concerns, and questions about technological reliability as factors that may hinder further adoption (Casu et al., 2024; Cruz-Gonzalez et al., 2025; Kuhail et al., 2025). Whether these chatbots can realize their potential as support tools therefore depends not only on what the technology is capable of providing but also on whether individuals who need mental health support choose to use it. Actual use behavior represents an important link between technological potential and the provision of mental health support in practice. Understanding whether and why individuals actually use AI mental health chatbots can clarify their real-world uptake and inform efforts to improve their practical application.

Moreover, actual use of AI mental health chatbots is not simply a technological choice; it entails judgments about both the need for mental health support and the selection of a particular means of obtaining it. On the one hand, engaging in mental health support involves assessing one's mental health, the potential benefits of seeking support, and one's ability to take the relevant action. Individuals may therefore consider whether they need psychological support, whether an AI chatbot could offer meaningful assistance, and whether they can use such a tool effectively (Abd-Alrazaq et al., 2021; Borghouts et al., 2021). On the other hand, as an emerging mode of mental health support, AI chatbots may raise concerns about privacy and data security, technological reliability, and service quality, while some individuals continue to prefer support from human professionals (Lee et al., 2025; Zhang & Lian, 2025). Understanding actual use thus requires consideration not only of health-related judgments but also of how individuals evaluate, and may resist, AI as an innovative form of support.

Against this background, this paper develops a conceptual framework integrating the Health Belief Model (HBM) and Innovation Resistance Theory (IRT). By bringing together two complementary theoretical perspectives, it seeks to examine systematically the factors associated with actual use behavior regarding AI mental health chatbots.

Problem Statement

Although AI mental health chatbots show considerable promise for improving access to mental health support and supplementing conventional services, whether individuals actually

use them for this purpose remains insufficiently understood. Rackoff et al. (2025) found that, although some respondents had used AI chatbots, relatively few had used them specifically for mental health support. Meanwhile, much of the existing literature has focused on intervention effectiveness, usability, user experience, and intentions to adopt these tools (Abd-Alrazaq et al., 2019; Jabir et al., 2023; Casu et al., 2024). Some studies have examined actual use and engagement (Inkster et al., 2018; McAlister et al., 2026), but further investigation is needed into the factors associated with actual use behavior, particularly the behavioral explanations underlying these associations.

This gap is particularly salient in the context of mental health support. Research on the adoption of AI mental health chatbots has frequently drawn on technology acceptance perspectives, emphasizing the relationships between intention to use and technology-related evaluations such as perceived usefulness, performance expectancy, effort expectancy, and social influence (Park & Kim, 2023; Li et al., 2024; Li et al., 2025). However, using AI mental health chatbots also involves a health-related behavioral component, and individuals' mental health conditions and health-related beliefs may shape their decisions to use these tools. Previous studies have linked mental health symptoms, perceptions of health threats, and anticipated support benefits to the use of, or intentions to use, digital mental health support tools (Funnell et al., 2024; Kosyluk et al., 2024). These findings suggest that explaining actual use requires attention to how individuals perceive mental health problems and evaluate corresponding support-seeking actions, rather than focusing exclusively on technology attributes.

Health-related beliefs, however, are only one part of the explanation. AI chatbots also constitute an emerging technology-mediated form of support, and prospective users may have reservations about their reliability, privacy and security, value, and compatibility with established help-seeking practices (Borghouts et al., 2021; Koulouri et al., 2022). Research on AI in mental health and on health chatbots has also highlighted perceived technological limitations, preferences for professional human support, and links between innovation-related barriers and resistance to use (Lee et al., 2025; Zou et al., 2024). Thus, being willing to seek mental health support is not necessarily equivalent to being willing to obtain that support through AI. Explaining actual use therefore also requires consideration of evaluations of, and resistance to, this particular innovative support modality.

Taken together, actual use of AI mental health chatbots involves both health-related judgments about taking action and evaluations of, or resistance to, AI as an innovative form of support. Although these processes differ in their explanatory focus, both concern the same behavioral outcome. Prior research has addressed health-related factors and technology-related concerns separately, but there remains scope to bring these forms of judgment together within a unified explanation of actual use behavior. Accordingly, this paper integrates the HBM and IRT to account for actual use of AI mental health chatbots from complementary health behavior and innovation resistance perspectives.

Research Objectives

This paper aims to develop a conceptual framework integrating the HBM and IRT to explain the actual use of AI mental health chatbots. Specifically, the study has the following objectives:

1. To examine the theoretical relationships between HBM-related factors, including perceived threat, perceived benefits, cues to action, and self-efficacy, and the actual use of AI mental health chatbots.
2. To examine how the IRT dimensions of usage barrier, value barrier, risk barrier, tradition barrier, and image barrier influence actual use behavior.
3. To establish the theoretical complementarity of the HBM and IRT in explaining actual use behavior and develop an integrated conceptual framework encompassing health-related beliefs and innovation-related barriers.

Literature Review

AI Mental Health Chatbots

AI chatbots are conversational systems that use artificial intelligence and natural language processing to interact with users in natural language (Adamopoulou & Moussiades, 2020). In mental health contexts, such systems are primarily used to provide mental health information, emotional support, and assistance with self-management (Balcombe, 2023; Kuhail et al., 2025).

AI mental health chatbots do not constitute a single, homogeneous class of systems. Some are specifically designed to provide mental health support, whereas general-purpose AI chatbots such as ChatGPT are increasingly being used for emotional expression, discussions of psychological difficulties, and self-regulation (Rackoff et al., 2025). In this paper, the term AI mental health chatbots therefore encompasses both purpose-built mental health applications and general-purpose conversational AI systems when they are used for mental health support. The focus is on their use as supplementary support tools, not as substitutes for professional psychotherapy.

A substantial body of research on AI mental health chatbots has addressed intervention effectiveness and usability. In a systematic review of 160 studies, Hua et al. (2025) found that the literature was concentrated largely on assessments of clinical effectiveness and pilot feasibility. Reviews by Li et al. (2023) and Jabir et al. (2023) further identify mental health outcomes, acceptability, and user experience as major evaluation domains. Effectiveness and usability studies, however, primarily address whether chatbots can produce intended outcomes and how users assess their experience; they do not directly explain why individuals choose to use them in everyday settings. Although some intervention studies have recorded usage duration or engagement, these indicators have generally served as supplementary measures of intervention implementation and participation (Heinz et al., 2025; Shoshani et al., 2026), rather than as independent, central behavioral outcomes.

Technology acceptance constitutes another prominent strand of research on chatbot adoption. Park and Kim (2023) and Li et al. (2025) have examined adoption-related judgments in relation to technological perceptions, social influence, and mental health-related factors. However, their principal outcomes have been adoption intentions or continuance intentions. Although such studies provide valuable insight into technology acceptance, subjective intentions cannot be equated with behavior that has already occurred. In contrast, Kosyluk et al. (2024), Rackoff et al. (2025), and McAlister et al. (2026) have examined decisions to use chatbots, reported utilization, and subsequent use, respectively, providing more direct evidence of behavior. These studies nevertheless differ in their populations and explanatory

scope, focusing on a specific screening context, prior use experiences, and ongoing interactions following initial use. Relative to the extensive literature on effectiveness, usability, and adoption intentions, theoretical explanations of actual use behavior therefore remain underdeveloped. Appendix A provides a detailed comparison of empirical studies published between 2022 and 2026 in terms of their research designs, independent and dependent variables, principal findings, and evidence of actual use. The following section further clarifies the concept of actual use behavior and how it is measured.

Actual Use Behavior

Actual use behavior refers to technology use that has occurred in a real-world setting, as distinct from a subjective plan or intention to use the technology in the future (Venkatesh et al., 2003). In the context of AI mental health chatbots, actual use specifically denotes individuals' use of AI chatbots for mental health support, rather than their general attitudes toward the technology, acceptance of it, or intentions to use it in the future.

Previous studies have assessed actual use of AI mental health chatbots in different ways, including survey-based reports of users' prior experiences and analyses of recorded interactions with chatbot systems (Rackoff et al., 2025; McAlister et al., 2026). Indicators such as whether use has occurred, frequency of use, number of sessions, duration of use, and repeat visits capture different manifestations of actual use behavior (Kosyluk et al., 2024; McAlister et al., 2026). On this basis, the present paper positions actual use behavior as the central outcome of its conceptual framework. The emphasis is on whether individuals actually use AI chatbots for mental health support, rather than treating variation in usage frequency or duration as a separate research objective.

Health Belief Model

The HBM is a widely used theoretical framework in health behavior research. It explains how individuals make health-related decisions based on perceived health threats, expected benefits, perceived barriers, and their ability to take action (Champion & Skinner, 2008; Rosenstock, 1974; Rosenstock et al., 1988). This perspective is particularly relevant to the use of AI mental health chatbots because the decision to use such tools depends not only on the technology itself, but also on users' perceptions of their mental health needs, the potential benefits of receiving support, and their ability to take action. Compared with technology acceptance perspectives that primarily focus on evaluations of technological attributes, HBM therefore provides an additional basis for understanding health-related beliefs in the context of mental health support (Guo & Chen, 2026; Yuen et al., 2023).

With the growth of digital health, HBM has been extended beyond traditional preventive health behaviors to technology-mediated contexts such as online health services, mobile health, and telehealth. It has been used to explain how health risk perceptions, perceived benefits, self-efficacy, and related beliefs influence the adoption of health technologies (Ahadzadeh et al., 2015; Riley et al., 2011; Yuen et al., 2023). HBM has also been integrated with technology acceptance theories to address health-related decision factors that are not fully captured by general technology adoption models (Kim & Park, 2012; Melzner et al., 2014). These studies provide a theoretical basis for extending HBM from traditional health behaviors to the use of digital health technologies.

Accordingly, this paper applies HBM to explain health-related factors that may facilitate the actual use of AI mental health chatbots. Perceived susceptibility and perceived severity are combined into perceived threat, while perceived benefits, self-efficacy, and cues to action are also included to capture users' judgments regarding their mental health needs, the expected benefits of use, their ability to act, and the conditions that may prompt action (Rosenstock et al., 1988; Yuen et al., 2023).

Innovation Resistance Theory

IRT is primarily used to explain why individuals may reject, postpone, or continue with existing behaviors when confronted with innovative products or services. Rather than focusing on factors that promote adoption, IRT emphasizes the mismatch between an innovation and users' existing habits, value judgments, and psychological perceptions (Ram, 1987; Ram & Sheth, 1989). In the context of AI mental health chatbots, users may still face a new form of service that differs from traditional face-to-face counseling or interpersonal support, even when they have a need for psychological support. The way the service is used, its perceived value, potential risks, and users' existing impressions of AI may all create resistance to actual use. IRT therefore offers a useful perspective for understanding why users may hesitate, delay, or reject the use of AI for mental health support.

As digital services and AI have developed, IRT has been applied to settings such as digital health care, digital finance, algorithmic decision-making, and other emerging technologies (Kumari et al., 2024; Mahmud et al., 2023; Talwar et al., 2024). Prior studies indicate that innovation resistance concerns not only difficulties associated with using technology but also perceived value, potential risks, established habits, and the image of the technology. The relative influence of these barriers, however, differs across technological contexts (Mahmud et al., 2023; Nie et al., 2025). These findings support the use of IRT as a multidimensional theoretical lens for examining resistance to innovation across different technologies.

Based on IRT, this paper examines five forms of resistance that may affect the use of AI mental health chatbots: usage barrier, value barrier, risk barrier, tradition barrier, and image barrier (Ram & Sheth, 1989). Usage, value, and risk barriers primarily reflect users' judgments about the fit of the technology with their way of using services, the value it provides, and its potential consequences. Tradition and image barriers, in contrast, are more closely related to established help-seeking practices and users' social and psychological perceptions of AI technology.

Conceptual Framework

The proposed conceptual framework takes actual use behavior regarding AI mental health chatbots as its central outcome. This behavior involves both a mental health support purpose and the choice of AI as an innovative means of obtaining support. Previous research has associated health-related beliefs with health-related Internet use and intentions to use digital mental health applications (Ahadzadeh et al., 2015; Funnell et al., 2024), while functional and psychological barriers to health chatbots have been linked to intentions to resist their use (Zou et al., 2024). These studies provide empirical support for considering health-related judgments and innovation resistance, respectively, but further integration is needed to explain actual use behavior. The present framework therefore brings together the HBM and IRT as two complementary perspectives on actual use of AI mental health chatbots.

The complementarity of the HBM and IRT lies first in their distinct explanatory perspectives. The HBM addresses individuals' decisions to act on health-related beliefs, whereas IRT explains resistance to innovative products and services (Rosenstock et al., 1988; Ram & Sheth, 1989). In mental health support contexts, the decision to seek support is not necessarily the same as the decision to accept AI as a particular mode of receiving that support. For instance, individuals may recognize the potential supportive value of an AI chatbot yet still resist using it because of privacy concerns, doubts about technological reliability, or established help-seeking habits. Thus, the HBM helps explain judgments about mental health problems, expected benefits of support, and conditions for action, while IRT accounts for resistance to AI as an innovative support modality. Together, they illuminate different aspects of the same behavioral outcome.

A further source of complementarity is the more differentiated account of barriers afforded by IRT. In their systematic review of AI mental health chatbots, Kuhail et al. (2025) identified a range of user difficulties, including operational problems, limited personalization, privacy and trust concerns, insufficient empathy, and technical failures. This diversity suggests that the HBM's broad perceived barriers construct may not adequately distinguish between different types of resistance or their relationships with actual use behavior. By contrast, IRT differentiates five dimensions of resistance: usage, value, risk, tradition, and image barriers (Ram & Sheth, 1989). The present framework therefore draws on these five IRT barriers instead of specifying perceived barriers as a separate HBM construct. This approach permits a more detailed consideration of resistance to AI-based mental health support, while extending the health behavior perspective and providing a conceptual basis for distinguishing among the relationships between specific barriers and actual use.

From the HBM perspective, stronger perceived threat may heighten individuals' sense that seeking mental health support is necessary, whereas perceived benefits provide a rationale for using AI chatbots based on their anticipated value. Cues to action may also draw attention to available support resources and prompt individuals to act. Funnell et al. (2024) reported significant positive associations between perceived severity, perceived benefits, and cues to action and intentions to use a digital mental health application. Self-efficacy may further facilitate actual use by strengthening individuals' confidence in their ability to carry out the behavior. In an AI-assisted language learning context, Chen et al. (2024) found a significant positive relationship between self-efficacy and actual AI tool use. Although this evidence comes from different settings and concerns different behavioral outcomes, the theoretical foundations of the HBM (Rosenstock et al., 1988) support the expectation that all four health-related constructs will be positively associated with actual use of AI mental health chatbots.

From the IRT perspective, usage, value, and risk barriers may constrain actual use through difficulties with operation and adaptation, insufficient value relative to alternatives, and concerns about adverse consequences, respectively. Zou et al. (2024) found a significant positive association between functional barriers to health chatbots and resistance intention. Tradition and image barriers may stem from reliance on established help-seeking practices and negative impressions of AI technology, respectively. Yang and Kwon (2024) found a significant negative association between tradition barriers and actual use of digital subscription services, while Keung and So (2025) reported that perceptions of AI identity affected evaluations of chatbot-provided psychological support quality. Zou et al. (2024) also

found an association between psychological barriers and intentions to resist health chatbots. Although the available evidence has not directly established all five relationships between IRT barriers and actual use of AI mental health chatbots, IRT provides a theoretical basis for expecting negative associations between each barrier and actual use behavior (Ram & Sheth, 1989).

Based on the above discussion, the proposed conceptual framework is illustrated in Figure 1, and the following nine theoretical propositions are advanced:

P1: Perceived threat is positively related to actual use behavior.
P2: Perceived benefits are positively related to actual use behavior.
P3: Cues to action are positively related to actual use behavior.
P4: Self-efficacy is positively related to actual use behavior.
P5: Usage barrier is negatively related to actual use behavior.
P6: Value barrier is negatively related to actual use behavior.
P7: Risk barrier is negatively related to actual use behavior.
P8: Tradition barrier is negatively related to actual use behavior.
P9: Image barrier is negatively related to actual use behavior.

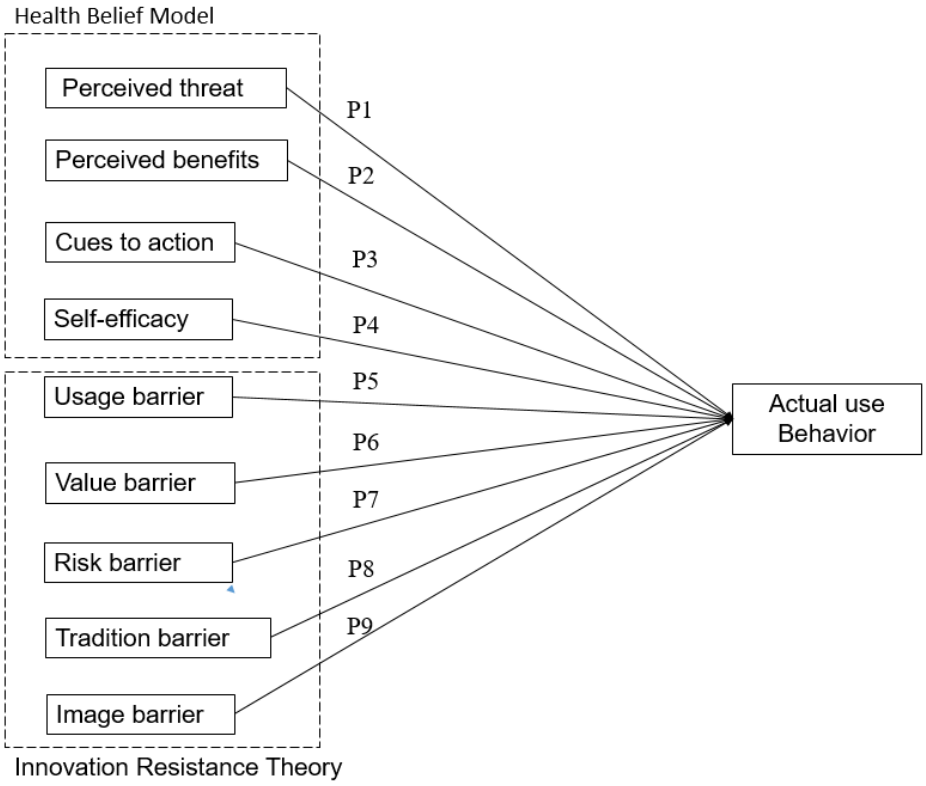

Figure 1 Conceptual Framework

Conclusion

As AI chatbots are increasingly used to support mental health, understanding whether users actually adopt these tools has become increasingly important. This paper proposes a conceptual framework that integrates the HBM and IRT to explain the actual use of AI mental health chatbots. The HBM represents health-related beliefs and action conditions through perceived threat, perceived benefits, cues to action, and self-efficacy, whereas IRT differentiates five dimensions of resistance to AI-mediated support: usage, value, risk,

tradition, and image barriers. Together, these perspectives distinguish between judgments about the need for mental health support and evaluations of AI as a means of obtaining it.

Theoretically, the framework distinguishes between the roles of health-related beliefs and innovation-related barriers in explaining actual use behavior. By incorporating the multidimensional structure of IRT, it provides a more differentiated account of usage, value, risk, tradition, and image barriers that may arise when AI is used for mental health support, extending the conceptual explanation beyond either theoretical perspective alone. In practical terms, the framework may inform the design and dissemination of AI mental health chatbots by highlighting the need for developers and service providers to consider not only users' mental health support needs but also their specific concerns about AI-mediated support.

As this paper proposes a conceptual framework, the relationships specified in the propositions require empirical validation. Future research may test these relationships across different user groups and mental health support contexts and further compare the relative effects of health belief factors and innovation resistance factors on actual use behavior.

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