# Understanding the Mechanisms of Mobile Health Apps Acceptance Among Silver Generation in China: A Mediation and Moderation Analysis

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**Abstract**
The rapid expansion of mobile technology has led to the integration of AI-enhanced chatbots as virtual assistants within mHealth apps, providing continuous support for users. However, variations in mHealth app design features influence user perceptions and acceptance intentions. This study aims to examine the mediation and moderation effects impacting the acceptance of mHealth apps among the silver generation (aged 55 and above) mobile users in China. The SOR Model explains the mediating role of initial trust, while VUT investigates the moderating roles of perceived anthropomorphism and perceived intelligence. Data was collected from 641 Chinese silver generation users with mobile phone experience in the past six months. The results indicated that initial trust mediates the influence of companion presence on mHealth app acceptance intention. Perceived anthropomorphism moderates the relationship between companion presence and mHealth acceptance intention. Perceived anthropomorphism also moderates the relationship between initial trust and mHealth acceptance intention. This study provides new insights into the mechanisms of mHealth app acceptance and offers substantial contributions for practitioners to improve app features.
**Keywords:** Initial Trust, Perceived Anthropomorphism, Perceived Intelligence, Mhealth Apps Acceptance, Silver Generation

**Introduction**
The global mHealth market is experiencing substantial growth, with its market size valued at USD 181.1 billion in 2023 and projected to reach USD 244.3 billion in 2024 (Statista, 2023). This growth is driven by the increasing automation and digitalization of economies, which has fueled the development of mHealth apps. The evolution of mHealth is marked from mHealth 1.0 to 4.0, as outlined by (Duy et al., 2020; Harrington, 2018). mHealth 1.0 is providing users with read-only and content-only information. mHealth 2.0 is bidirectional, allowing users to interact with health apps to achieve health-related goals. mHealth 3.0 emerged using data to drive healthy behaviours and requiring fewer manual data entries from users. In Web 4.0, Artificial Intelligence (AI) agents act as middlemen in human and machine interaction, while AI data analytics are increasingly used in mHealth research and development. Robots and

chatbots are programmed to act with human intelligence performing cognitive and emotive activities. It is a web of intelligent interaction in which the human mind and machines can interact in symbiosis. Despite these advancements, the current landscape of mHealth apps varies in terms of technology and app design features. In 2020, only 7.2% of mHealth apps incorporated advanced and standard AI worldwide (Figure 1). Although the role of AI in mHealth is currently small, it is rapidly growing, indicating a significant technological trend for the future of mHealth.
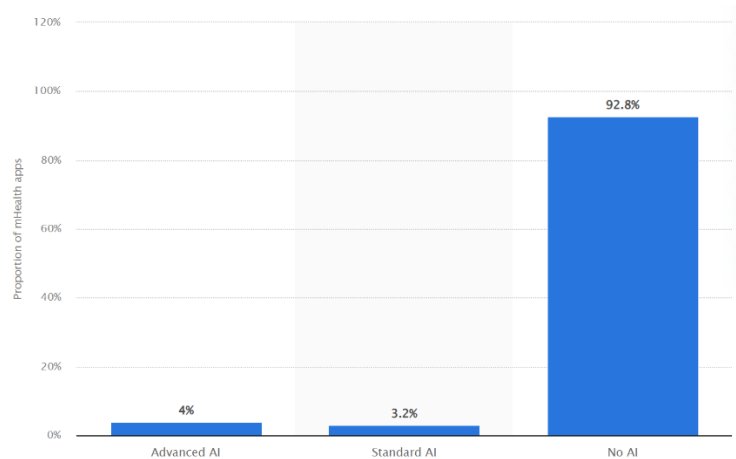


Figure 1: Proportion of mHealth apps incorporating advanced and standard AI worldwide (Source: Statista, 2023)

Drawing from prior literature, the present study addresses several research gaps. Firstly, it explores the mediating role of initial trust in the acceptance intention of mHealth apps. While existing research predominantly investigates the direct link between technological features and acceptance, neglecting the broader predictive capacity, integrating an indirect effect into technology adoption models can significantly augment practitioners' comprehension of the underlying mechanisms driving users' acceptance intentions. Wei and Long (2008) delineate the distinction between trust and initial trust, defining the latter as the preliminary credibility evaluation individuals form towards unfamiliar interaction partners during early interpersonal communication stages. This aligns with Willis and Todorov's (2006) discovery that initial trust judgment is an automatic, swift process based on general cues, subsequently influencing decision-making. Similarly, Glikson and Woolley (2020) underscore the pivotal role of initial trust in exploring technology adoption behavior. By accounting for the mediating function of initial trust, this study aims to fill this void and furnish a more holistic understanding of the factors shaping mHealth app acceptance intentions. Incorporating the concept of initial trust will illuminate the underlying cognitive processes and mechanisms guiding users' acceptance decisions.

Secondly, this study addresses the research gap concerning the significance of humanlike features as a boundary condition influencing acceptance intention. Scholar's advocate considering variations in humanlike features when devising strategies to elicit positive user feedback (Uysal et al., 2022; Yu, 2020). This concern extends to information systems, where researchers are urged to move beyond the traditional focus on technological benefits, risks, and decision styles (Becker et al., 2017; Bott et al., 2019; Han, 2021; Li et al., 2019) towards exploring differences in humanlike features to understand users' acceptance and usage of specific technologies. Nonetheless, the impact of humanlike features remains underexplored in the literature on mHealth apps. To bridge this gap, recognizing the role of humanlike

features as moderators is crucial, an area that warrants further investigation. This study delves into two primary humanlike features, namely anthropomorphism and intelligence, as moderators, drawing on prior research.

MHealth apps, akin to other smart technologies like Apple's Siri and Microsoft's Cortana, lack a visual channel and predominantly rely on design elements associated with disembodied agents for anthropomorphic cues. These cues include the agent's name, communication style, pitch, and personality (refer to Figure 2). While previous studies have primarily focused on agents accessible via phones or generic devices (e.g., Moussawi et al (2020), chatbots in marketing including Alboqami (2023); Sheehan et al (2020), and other computer systems such as Kim et al (2022), AI-enabled mHealth apps present a considerably more intricate landscape. Unlike Siri, Alexa, Google Assistant, and Cortana, mHealth apps are tailored to address healthcare contexts, rendering them substantially more complex than the systems scrutinized in foundational studies (Liu & Tao, 2022).



ChunYu Doctor          DingXiang Doctor          PingAn Doctor

Figure **Error! No text of specified style in document.** : Different Levels of Anthropomorphism in Different MHealth Apps

In mHealth apps, anthropomorphism and intelligence can coexist at various levels (see Figure 3). For example, the "ChunYu Doctor" app might be perceived as intelligent due to its capacity to comprehend intricate commands, adapt, learn from interactions, and furnish pertinent and valuable information (see Figure 3). However, it might be perceived as less anthropomorphic, as it lacks anthropomorphic attributes such as a human face and natural language (see Figure 3).

Figure 3: Different Levels of Intelligence in Different MHealth Apps

Thus, this study aims to develop an understanding of the various design features influencing the acceptance of mHealth apps among the silver generation (aged 55 and above) in China. It investigates both the mediating mechanism of initial trust and the boundary condition of humanlike features in mHealth apps that may influence acceptance intention. By doing so, this study contributes to enhancing mHealth app development. Its findings could aid policymakers in formulating pertinent policies and tapping into the untapped potential of the Chinese mHealth market.

The paper is structured into several phases: The first phase introduces the study. The second phase reviews evidence from past studies on mHealth apps, focusing on the theoretical background and influencing factors. The third phase outlines the methodology employed for data collection and analysis. The fourth phase presents the results and findings. Finally, the last phase discusses the implications of the study, draws conclusions, and offers future recommendations.

**Literature Review**
**The Stimulus Organism Response (SOR) Model**
The S-O-R model, developed by Mehrabian and Russell (1974), offers insights into how environmental stimuli influence consumer behavior and the mechanisms involved from input to output. Comprising three components - environmental stimuli, organismic states (changes in individuals following exposure to external stimuli), and individual responses (including psychological and behavioral aspects) - this model has found widespread application in consumer behavior research.

In the context of mHealth apps, the S-O-R model elucidates whether environmental stimuli (S) affect consumer internal states (O) and subsequently influence overall responses (R). Here, humanlike presence serves as the environmental stimulus, while the organism encompasses customers' cognitive and emotional judgments of these stimuli, manifested in the form of initial trust. Following Hsu et al (2012), consumers' acceptance intention is construed as behavioral responses.

The S-O-R model underscores that environmental stimuli influence consumers' internal states. In the context of mHealth apps, humanlike presence is an external stimulus facilitated

by current AI techniques for immediate interaction, albeit technological advancements have transitioned communication and collaboration formats from oral communication to virtual interaction methods. This transition may heighten anxiety and uncertainty surrounding the acceptance of new technology. However, literature on humanlike technology suggests that acceptance tends to increase with technology's human-likeness (Belanche et al., 2021; Walters et al., 2008).

Furthermore, the S-O-R model emphasizes that the organism serves as the primary link between stimuli and response. This aligns with leveraging user experience to enhance positive responses. In line with Deng et al (2018); Meng et al (2019), this study asserts that initial trust is a significant mechanism driving positive responses towards technology adoption. Recent research also underscores the critical role of trust in health marketing, highlighting the increasing importance for companies to cultivate consumers' trust.

**The Uncanny Valley Theory (UVT)**
The "Uncanny Valley" theory, proposed by robotics scientist Masahiro Mori in 1970, posits that robots and non-human objects can evoke eerie, strange, and fearful psychological perceptions as they become more human-like. The term "uncanny" originates from an influential article titled "On the Psychology of the Uncanny" by German psychologist Ernst Jentsch in 1906, later expanded upon by Sigmund Freud and David in their work "The Uncanny" in 1919, establishing it as a well-known psychological theory. Despite Ernst Jentsch's theory gradually fading from prominence over time, the Uncanny Valley theory remains relevant in understanding human responses to humanoid artificial intelligence.

According to the Uncanny Valley theory, consumers generally respond positively to increasingly human-like humanoid artificial intelligence. Enhancing human-like features contributes to higher consumer satisfaction and loyalty, encompassing aspects such as external appearance, personality traits, functional elements, social-emotional elements, and relational elements. However, when artificial intelligence becomes extremely human-like, consumers may perceive it as threatening and experience discomfort, leading to a negative attitude. Factors such as the social image of artificial intelligence, humanizing features, and unpredictability contribute to consumers entering the Uncanny Valley, where autonomously capable humanoid artificial intelligence may be perceived as terrifying, fostering a negative attitude.

When evaluating human-like AI-enabled products such as mHealth, consumers base their reactions on anthropomorphic dimensions. The Uncanny Valley theory serves as a foundational framework for studying the anthropomorphism of AI-enabled products, elucidating people's aversive responses to human-like AI features approaching a certain degree of similarity to humans. As the similarity between human-like AI-enabled products and humans grows, individuals may initially develop a positive affinity but may experience unease and discomfort as human-like features approach a specific level. Nevertheless, as the similarity continues to the point of indistinguishability between AI-enabled products and humans, emotional responses shift back to positivity, resembling empathy observed between humans. According to the Uncanny Valley theory, each dimension of human-like AI can lead individuals into the uncanny valley.

The Uncanny Valley theory has gained popularity in explaining the relationship between perceived anthropomorphic characteristics of objects, users' emotional states, and psychological changes. In the domain of AI-assisted technologies, intelligence and anthropomorphism are recognized as two human-like features. Building upon the insights from the Uncanny Valley theory, this study considers perceived intelligence and perceived anthropomorphism as moderators buffering individuals' acceptance intention in using mHealth.

**Initial Trust**

The S-O-R model offers a conceptual framework for understanding the mediating role of initial trust in shaping acceptance intentions within the realm of mHealth apps. Defined by Mehrabian and Russell (1974), the "organism" refers to individuals' internal cognitive and affective reactions, serving as an intermediary linking stimuli to responses. In this study, initial trust was recognized as a pivotal organism. Adhering to the S-O-R model, initial trust was perceived as a mechanism facilitating the establishment of a foundational relationship between users and apps. Put differently, the interactive behavior between both parties within an mHealth app can be elucidated through the lens of initial trust. Existing research corroborates this perspective, demonstrating that initial trust engenders desired behavioral responses (e.g., Chen & Barnes, 2007; Talwar et al., 2020; Osakwe et al., 2022). Similarly, studies underscore the role of initial trust as cultivated through cues embedded in virtual environments, ultimately enhancing optimal user behaviors (Aoki, 2020; Gillath et al., 2021; Maehigashi, 2022). Furthermore, various consumer behavior studies assert that initial trust serves as a crucial mediating variable in the pathway to behavioral intention (e.g., Chiu et al., (2017) and customer loyalty (e.g., Shankar & Jebarajakirthy, 2019). Building upon this rationale, initial trust was posited as the mechanism linking the stimulus factor of mHealth app (companion presence) to acceptance intention. Consequently, this study hypothesized that:

H1:    Initial trust mediates the relationship between companion presence and mHealth app acceptance intention among the Chinese silver generation.

**Perceived Humanlike Features**

Drawing upon the Uncanny Valley theory, users may undergo varying experiences based on the perceived level of anthropomorphic characteristics of an object (Balakrishnan & Dwivedi, 2021). Consequently, users may perceive different levels of humanlike features in mHealth apps. In recent research within the AI domain, intelligence and anthropomorphism emerge as fundamental humanlike features (Moussawi et al., 2020; Pillai et al., 2024; Tang et al., 2022; White & Katsuno, 2021). Therefore, this study suggests that individuals' differences in their perceived level of humanlike features (i.e., perceived anthropomorphism and perceived intelligence) may significantly influence the adoption of mHealth apps.

This study posits that the impacts of companion presence and initial trust on acceptance intention may not uniformly affect all users of the silver generation, as these relationships could be influenced by disparities in humanlike features in mHealth apps. The Uncanny Valley theory Mori et al (2012) serves as a prominent framework for elucidating the interplay between perceived anthropomorphic characteristics of an object, users' emotional states, and psychological changes (Balakrishnan & Dwivedi, 2021). In the realm of AI-assisted

technologies, White and Katsuno (2021) assert that intelligence and anthropomorphism represent two pivotal humanlike features of AI. Considering this context and the arguments stemming from the Uncanny Valley theory, this study incorporates perceived intelligence and perceived anthropomorphism as moderators shaping individuals' acceptance intentions in mHealth usage.

As such, this study proposes the following moderating hypotheses
H2: Perceived anthropomorphism significantly moderates the relationship between companion presence and mHealth app acceptance intention among the Chinese silver generation, where the relationship is stronger when perceived anthropomorphism is high.
H3: Perceived anthropomorphism significantly moderates the relationship between initial trust and mHealth app acceptance intention among the Chinese silver generation, where the relationship is stronger when perceived anthropomorphism is high.
H4: Perceived intelligence significantly moderates the relationship between companion presence and mHealth app acceptance intention among the Chinese silver generation, where the relationship is stronger when perceived intelligence is high.
H5: Perceived intelligence significantly moderates the relationship between initial trust and mHealth app acceptance intention among the Chinese silver generation, where the relationship is stronger when perceived intelligence is high.

**Research Methods**
The article explores the mediation and moderation role of initial trust, perceived anthropomorphism and perceived intelligence in mHealth acceptance intention among the Chinese elderly population. The researchers employed primary data collection methods, utilizing questionnaires to gather the necessary data. The questionnaires were extracted from past literature; for example, initial trust was measured with two dimensions: a three-item scale of competence and a three-item scale of goodwill from (Kim and Tadisina, 2003). Companion presence was measured using Ou et al.'s (2014) scale, which included five items for social presence and four items for telepresence. The scale was also developed in Lim et al.'s (2021) research. To assess acceptance intention, five items were drawn from the scale developed by Junglas et al (2013), as well as that by Sohn and Kwon (2020). Both perceived anthropomorphism and perceived intelligence were measured using Moussawi et al.'s (2020) scale with six items for perceived anthropomorphism and five items for perceived intelligence.

In addition, the Chinese silver generation (born before 1966 and aged over 55 years old in 2021) who had utilized a smartphone within the past six months are the respondents and distributed the surveys using in-home interview. The researchers have sent around 800 surveys and received 662 feedback that represents around 82.8 percent response rate. After data screen, 21 responses were eliminated (case-wise deletion) since respondents answered with obvious regularity (choosing the same option for all items). Ultimately, a total of 641 final responses were retained and used in further analyses using SPSS 25 and Smart PLS 3.3.5. The study has used five variables such as companion presence (CP), initial trust (IT), perceived anthropomorphism (PA), perceived intelligence (PI), and one dependent variable which is acceptance intention (AI). These variables are given in Figure 2.
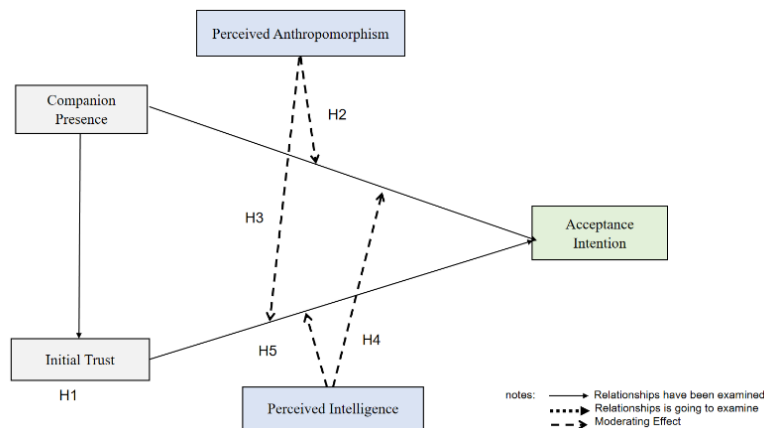
Figure 4: Theoretical model

**Research Findings**

To examine the mediating effect of initial trust in this current study, the bootstrap estimation with 5000 sub-samples Preacher & Hayes (2004, 2009) procedure was applied to test the structural model. The findings indicated that the initial trust significantly mediates between companion presence and acceptance intention, which was significant ($\beta$=0.093, t-value=4.500, p-value < 0.001). Accordingly, H1 was supported. Table3 indicates the mediation effect. Furthermore, based on the path coefficients assessment, companion presence had a strong positive impact on initial trust ($\beta$=0.513, t-value=10.830, p-value<0.001), and initial trust was found to have a significant positive influence on mHealth app acceptance intention ($\beta$=0.181, t-value=4.669, p-value<0.001). Accord to this results and Table 3, initial trust partially mediates the relationship between companion presence and acceptance intention in this current study.

Table 3
*Assessment of Mediating Effect*

| Path Coefficient | Indirect effect ($\beta$) | Standard Deviation (STDEV) | T Statistics | P Values |
|---|---|---|---|---|
| Companion Presence→Initial Trust →Acceptance Intention | 0.093 | 0.021 | 4.500 | 0.000 |

The moderation effects were then evaluated by bootstrapping technique (with 5000 sub-samples). (Table 4). The findings indicated that perceived anthropomorphism was a significant moderator concerning the impact of companion presence on acceptance intention ($\beta$=0.295, t-value=4.149, p-value<0.050); therefore, H2 was supported. Meanwhile, perceived anthropomorphism was a significant moderator to the impact of initial trust on acceptance intention ($\beta$=0.212, t-value=4.407 p-value<0.050); therefore, H3 was supported. On the other hand, perceived intelligence did not exhibit a significant effect on companion presence and acceptance intention ($\beta$=0.019, t-value=0.281, p-value=0.779); therefore, H4 was not supported. Furthermore, perceived intelligence did not exhibit a significant effect on companion presence and acceptance intention ($\beta$=0.015, t-value=0.268, p-value=0.789); therefore, H5 was not supported.

Table 4
*Assessment of Moderating Effect*

| Path Coefficient | Std. Beta(β) | Standard Deviation (STDEV) | T values | P values |
|---|---|---|---|---|
| H2) Companion Presence*Perceived Anthropomorphism→ Acceptance Intention | 0.295 | 0.071 | 4.149 | 0.000 |
| H3) Initial Trust*Perceived Anthropomorphism → Acceptance Intention | 0.212 | 0.048 | 4.407 | 0.000 |
| H4) Companion Presence* Perceived Intelligence → Acceptance Intention | 0.019 | 0.067 | 0.281 | 0.779 |
| H5) Initial Trust*Perceived Intelligence → Acceptance Intention | 0.015 | 0.056 | 0.268 | 0.789 |

The positive relationship between companion presence and acceptance intention was stronger for the highly perceived anthropomorphism group than the low perceived anthropomorphism group (Figure 3), suggesting that H2 was supported. Moreover, the positive relationship between initial trust and acceptance intention was stronger for the highly perceived anthropomorphism group than the low perceived anthropomorphism group (Figure 4), suggesting that H3 was supported. Subsequently, the effect size of perceived anthropomorphism was $f2=0.104$, denoting the relevance of perceived anthropomorphism as a moderator (Chin et al., 2003).
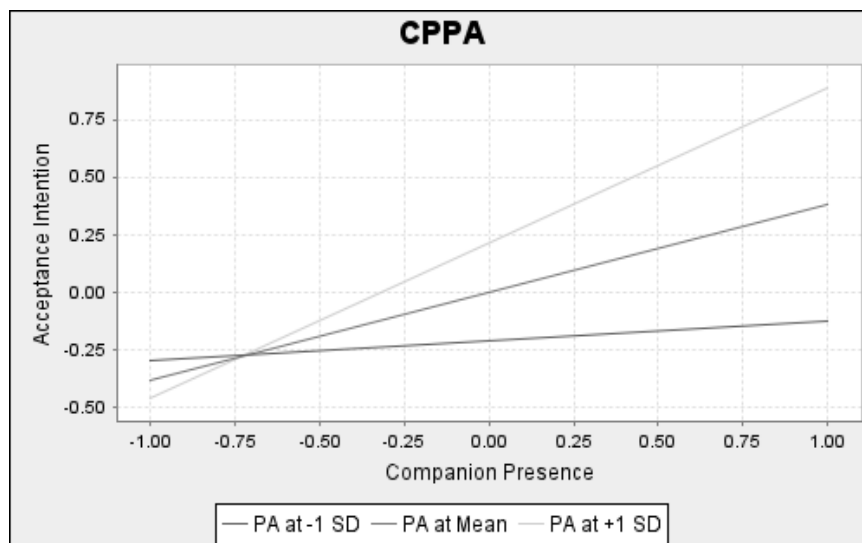


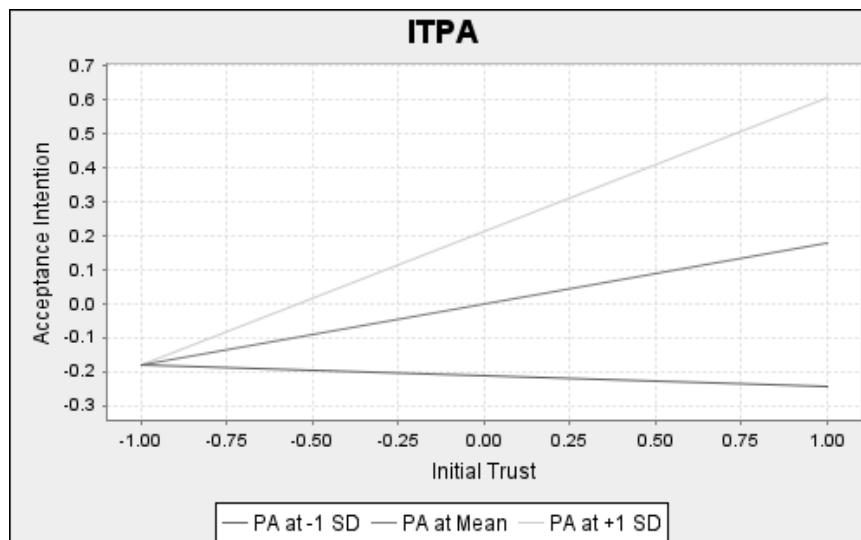Figure 5: Companion Presence * Perceived Anthropomorphism Interaction Plot

Figure 6: Initial Trust * Perceived Anthropomorphism Interaction Plot

**Discussions**

The findings of this study underscore the significant role of initial trust as a mechanism linking mHealth app features, particularly companion presence, to acceptance intentions among silver generation users. This aligns with the notion that in the mobile healthcare domain, technological and functional features serve as stimulus cues that influence users' affective reactions, such as trust, subsequently shaping their behavioral responses, namely acceptance intention (Mehrabian & Russell, 1974; Zhao et al., 2018). Consistent with Shareef et al (2021), it is evident that in the absence of human support, elderly individuals can effectively operate a living machine system if they perceive a sense of belongingness and social interactivity. Therefore, an mHealth app equipped with commendable technological attributes, such as companion presence, fosters users' trust, ultimately realizing the overarching goal of acceptance intention. Trust thus emerges as a fundamental prerequisite for facilitating interactions between users and the system.

The current findings align with previous research demonstrating the mediating effect of initial trust on consumers' purchase intentions Chakraborty et al (2022), adoption of mobile payment apps Chakraborty et al (2022), and users' usage intentions (Shao et al., 2022). Scholars in marketing e.g., Pavlou (2003); Shareef (2013) and virtual technology e.g., Dwivedi et al (2016); Molins-Ruano et al (2016) unanimously emphasize that for consumers to accept virtual entities, they must trust the system. Essentially, this study provides compelling evidence regarding the pivotal role of trust in the domain of mHealth apps.

The subsequent segment of the study delves into investigating how perceptions of humanlike features of AI, namely perceived anthropomorphism and perceived intelligence, moderate the relationship between antecedents (i.e., companion presence and initial trust) and mHealth app acceptance intention. This exploration of humanlike features' perception offers a novel perspective on applying the Uncanny Valley theory Mori et al (2012), particularly within mHealth app studies.

As hypothesized, the path from antecedents (i.e., companion presence and initial trust) to acceptance intention is stronger among users who perceive higher levels of

anthropomorphism. This suggests that companion presence and initial trust are particularly influential in heightening acceptance intention among users who perceive greater anthropomorphic features. Previous research consistently demonstrates that anthropomorphism in technology enhances its appeal and fosters a sense of vitality by incorporating human-like features (Li & Suh, 2022). Anthropomorphism also provides psychological closeness and emotional support, as highlighted by (Dang and Liu, 2023). Consequently, users who perceive more anthropomorphic features are inclined to companion with and trust the mHealth app, thereby exhibiting higher acceptance intentions. This finding is significant, particularly considering the formative characteristics of the silver generation, who prefer human social models of interaction over a master-slave relationship between humans and robots (Alimardani & Qurashi, 2020). Thus, when companion presence and initial trust are perceived favorably, acceptance intention tends to be higher among users with higher perceived anthropomorphism.

Conversely, the interaction analysis indicates that the effect of antecedents (i.e., companion presence and initial trust) on acceptance intention does not vary across users with low and high perceived intelligence. This insignificant moderating effect suggests that the relationship between companion presence and acceptance intention, as well as initial trust and acceptance intention, remains robust irrespective of users' perceived intelligence. In other words, the influence of companion presence and initial trust on acceptance intention is not contingent on the silver generation's perceived intelligence of the mHealth app.

These results deviate from other studies suggesting that perceived intelligence positively influences adoption intention in AI-based chatbots Pillai et al (2024) and AI-based personal intelligent agents (Moussawi et al., 2023). In the context of mHealth apps, this inconsistency may stem from the unique expectations of silver generation respondents in this study. Brewer et al (2022) note that the silver generation prefers to seek subjective health information and advice from other people, making them less sensitive to the intelligence feature of mHealth apps. Additionally, they anticipate receiving personalized responses contextualized to their health needs, where current AI-enabled technology may fall short. Moreover, AI providers may be less adept than human providers in accounting for consumers' unique characteristics and circumstances in the medical realm, further reducing sensitivity to the intelligence feature of AI (Bonezzi & Morewedge, 2019). Thus, the implementation of companion presence and initial trust in mHealth apps significantly contributes to the silver generation's acceptance intention, regardless of perceived intelligence levels.

**Implications**

The current study contributes to the literature by elucidating the pivotal role of initial trust as a mediating mechanism in mHealth app acceptance intention. Drawing upon Mehrabian and Russell's (1974) S-O-R model, this research uncovers the pathway through which mHealth app features influence users' acceptance intentions via initial trust. Notably, it underscores the indispensability of initial trust in the healthcare domain, spanning both physical and online realms (Cao et al., 2020; Li et al., 2019). These findings resonate with prior assertions that initial trust serves as a foundational belief motivating individuals to adopt or explore new technologies (McKnight et al., 2002; Beldad et al., 2017). In doing so, this study extends previous research, which predominantly focused on direct relationships, by providing a nuanced and comprehensive understanding of the mechanisms enhancing acceptance of app

usage. Consequently, it underscores the critical importance of initial trust, particularly in engaging silver users, thereby warranting further attention in future studies on mHealth apps.

Furthermore, this study revealed that perceived anthropomorphism moderates the relationship between antecedents (i.e., companion presence and initial trust) and acceptance intention, whereas perceived intelligence does not exert a moderating effect on these relationships. This suggests that anthropomorphic features in mHealth apps are more likely to enhance acceptance intention among the silver generation when users perceive greater companionship and initial trust. Conversely, the presence of intelligence features in mHealth apps, regardless of their perceived level, does not significantly impact the effect of companion presence and initial trust on acceptance intention. These empirical findings address an existing gap in the literature and provide novel insights into the role of variations in humanlike features in shaping the relationship between app features and acceptance intention, particularly within the context of mHealth apps.

Moreover, this study offers valuable insights for information system management and app developers, highlighting the importance of anthropomorphism features in mHealth apps. As technology continues to evolve, it becomes increasingly crucial for app developers to integrate anthropomorphism features into their designs, facilitating seamless interaction between technology and human users. By incorporating humanlike features, apps can mitigate user discomfort and foster a stronger sense of connection. Recognizing the impact of these features on user experience, app developers can leverage them to create a more user-friendly and engaging environment. Such enhancements can cultivate a deeper bond between users and the app, leading to heightened user satisfaction and prolonged app usage. Therefore, this study underscores the significance of incorporating humanlike features as a means to optimize the effectiveness and user-friendliness of mHealth apps, ultimately benefiting both information system management and app developers.

**Conclusions**

The present study contributes to the body of knowledge in different aspects. First, it underscores the critical role of initial trust as a significant mechanism that should not be overlooked when evaluating the influence of companion presence on acceptance intention. It highlights the necessity of establishing a trustworthy relationship between users and mHealth apps to ensure a positive and dependable user experience. Specifically, this study unveiled a mediation process whereby mHealth app feature (i.e. companion presence) influence users' acceptance intention via initial trust. Most notably, it demonstrates that initial trust is desperately needed in healthcare domain, both in physical and online spaces. Accordingly, the critical role of initial trust, especially in engaging silver users, should be given more attention in future studies on the mHealth app.

Additionally, the research reveals that perceived anthropomorphism moderates the relationship between companion presence and mHealth app acceptance intention among Chinese silver generation users. Specifically, the positive impact of companion presence on acceptance intention is more pronounced among individuals with a higher level of perceived anthropomorphism. Moreover, perceived anthropomorphism also moderates the relationship between initial trust and mHealth app acceptance intention among Chinese silver generation users. In the healthcare domain, users more focus on whether such technology can solve health problems more than the humanlike features. Thus, this study extends this

stream of research by applying the uncanny valley theory (Mori et al., 2012) to explicitly test the moderating role of different humanlike features in the context of the mHealth app.

This study offers beneficial insights to mHealth marketer in understanding older users' basic expectations to accept a particular mHealth app. Of the factors examined, perceived anthropomorphism exhibited the highest effect on the directly influncin factors on acceptance intention. Thus, mHealth marketers should consider strategically encouraging potential silver generation users to use mHealth app with anthropomorphism function. Moreover, this study offers valuable insights to information system management and app developers, emphasizing the significance of anthropomorphism features in mHealth apps. As technology continues to advance, it becomes imperative for app developers to integrate anthropomorphism features into their designs, fostering a seamless interaction between technology and human users. By incorporating rich humanlike features, apps have the potential to alleviate user discomfort and enhance their sense of connection

**Limitations**
Despite the intriguing findings presented in this study, it's essential to acknowledge several limitations. Firstly, the research was conducted within the specific context of China, limiting the generalizability of the results. The investigation did not explore how cultural values intersect with the proposed variables, which could have provided valuable insights. To overcome this limitation, future research should delve deeper into understanding how cultural differences influence the intention to accept mHealth apps by incorporating cross-country data. Scholars have argued that technology acceptance behavior can vary across different national cultures (e.g., Kimiagari & Baei, 2022; Metallo et al., 2022). Therefore, extending the current model to include other countries would offer a more comprehensive understanding of the impact of cultural factors on mHealth app acceptance intention.

Furthermore, the absence of significant moderating effects of perceived intelligence in this study presents intriguing avenues for future investigations. Despite ample evidence highlighting the positive impact of perceived intelligence on technology usage Moussawi et al (2023); Pillai et al (2024), the findings of this study contradict this prevailing notion. This insignificant outcome suggests the presence of overlooked factors that may influence this relationship, warranting further exploration.

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