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Inclusive design strategies for older users of digital healthcare services

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Abstract. Digital health applications have become routine tools for older adults to register appointments, pay medical fees and purchase medicines, yet many interfaces still impose heavy cognitive and operational demands. This study aimed to identify information-processing barriers faced by older adults when using the Chinese mobile health app Chunyu Doctor and to propose stage-based interface improvement strategies. 16 adults aged 60-70 years with prior experience of health apps completed semi-structured, one-on-one interviews while performing consultation, medication purchase and insurance settlement tasks. Interview transcripts were coded thematically and mapped onto three stages of interaction: perception, cognition and execution. The analysis revealed that perception barriers arise from dense screens, weak text and icon legibility, ambiguous tappable areas and hardly noticeable audio prompts. Cognitive barriers involved technical terminology that exceeds immediate comprehension, icon metaphors that do not reliably signal function, and section structures that conflict with users' task logic. Execution barriers centre on difficulty locating key functions, demanding gesture operations, lengthy branched flows and tight time limits in steps such as verification codes. On this basis, the study proposed stage-specific design strategies that reorganise navigation around medical tasks, rewrite critical text in plain language, adjust icon sets and grouping, and relax temporal and feedback constraints. The results offer a process-based reference for evaluating and improving age-friendly interaction in digital health services

Keywords: information processing model; interaction barriers; aging-friendly design; cognitive load; user interface

INTRODUCTION

Smartphones and various medical apps have penetrated the daily lives of older adults, and tasks such as making medical appointments, paying fees and keeping in touch with family and friends are increasingly carried out via mobile devices. Most existing apps are designed with the operating habits of younger and middle-aged users as the primary reference, which leads to information-dense interfaces and deep navigation hierarchies. His neglect of differences in perceptual abilities, cognitive load and motor performance among older adults results in high cognitive demands during use and undermines their trust in digital services and willingness to use them.

Research on older adults' use of mobile health applications and intelligent interfaces has increased. According to Q. Wang *et al.* (2022), a scoping review of 96 publications showed that usability evaluations of mHealth applications for older adults have focused

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mainly on indicators such as satisfaction and learnability, whereas memorability and error rates have been examined far less systematically. Many studies continue to apply evaluation instruments developed for younger adults, which may conceal age-related operational burdens. Drawing on a systematic review of 65 studies, W. Septiani *et al.* (2024) pointed out that the field relies heavily on the system usability scale, but that studies with older participants often need to be complemented by interviews, think-aloud protocols and behavioural observations in order to identify hidden barriers related to vision, motor actions and comprehension. Drawing on multiple empirical studies, M. Gomez-Hernandez *et al.* (2023) summarised design guidelines for mobile applications targeting older users, providing detailed recommendations on typeface and weight, contrast, icon semantics, information grouping and navigation depth. They emphasised that such guidelines should be grounded in documented usability problems rather than based solely on designers' experience. R. Kirkscey (2020) proposed a combined approach to mHealth application development and user experience evaluation. Using an osteoporosis-prevention app as a case, the study showed how to enumerate different stakeholders during requirements gathering, identify cognitive and operational constraints among older users, and then apply multiple evaluation methods throughout subsequent design iterations. In a field study of older adults' use of health apps, A. Khamaj & M.A. Abdulelah (2024) identified specific difficulties such as small font sizes, densely packed touch targets, multi-level menus and unclear feedback. They argued that interface structure and interaction flows should be adjusted together to reduce these burdens. X. Mattick *et al.* (2025) went further by mapping typical difficulties experienced by older users onto usability and user experience metrics. They proposed a matrix that links operational errors, disorientation and visual fatigue to navigation clarity, touch accuracy and visual hierarchy, thereby providing a testable reference for design evaluation. B. McCarthy *et al.* (2024) incorporated health status and degree of cognitive decline into the analytical framework, and found that older adults with mild cognitive impairment are more likely to become lost in navigation or repeat operations, and that once interface structure becomes complex, these differences are further amplified. Comparing interface designs across different online learning systems, A. Shi *et al.* (2021) found that older users' working-memory load increases markedly under multitasking conditions and deep navigation structures. Their findings suggest that if navigation on smartphones becomes too hierarchical, it directly increases the burden of retaining information and recalling paths. Analysing selective visual attention among older adults on fresh-food e-commerce interfaces, J. Ye *et al.* (2025) showed that complex backgrounds and scattered layouts prolong search time. When the product area and distracting elements were simplified, older users' gaze concentration and operational efficiency both improved.

Based on the above research results and identified gaps, this article aimed to compile a list of barriers to interacting with information that older adults encounter at various stages of using digital health applications, based on their experience in performing real-life medical tasks. Based on this, recommendations were proposed for evaluating and improving user-friendly interfaces for older adults in such applications.

MATERIALS AND METHODS

As the share of mobile health services in scenarios such as appointment registration, fee payment, medication purchase and insurance reimbursement continues to grow, these applications involve more procedural steps and denser information than everyday social and entertainment apps, which makes interface-use problems arising from cognitive aging more pronounced. This study takes digital health applications as its object of analysis and focuses on the information-interaction barriers that older adults encounter at each stage of use, with Chunyu Doctor selected as the specific case for in-depth analysis. On the one hand, this application has a large user base in China's mobile healthcare sector and brings online consultation, appointment registration, medication purchase and health-insurance services together on a single platform, making it a tool that older adults commonly use in real care-seeking situations. On the other hand, each of its screens integrates multiple entry points and information modules, and the task flows are relatively long with high information density, covering key decision points such as costs and medication as well as auxiliary content such as health information.

This study draws on human information processing models and divides older adults' interactions with mobile applications into perception, cognition and execution stages in order to identify weak points in the use process (Card *et al*., 1983). The perception stage corresponds to information input, during which users obtain stimuli such as text, icons and sounds presented on the interface through various senses. In the cognition stage, users rely on their current state of attention and working memory, together with their prior usage experience, to interpret, filter and associate the input information. The execution stage unfolds after comprehension has been achieved, as users make choices and carry out actions such as clicking, swiping and typing; the smooth progression of this stage depends on timely feedback from the interface, clear task paths and a relatively coherent interaction flow.

According to the official definition in China, people aged 60 years and above are classified as older adults (Law of the People's Republic of China on the Protection of the Rights and Interests of the Elderly, 2018).

Survey data indicate that adults aged 60-70 are more active users of smart devices and, overall, still maintain good autonomous operating and communication abilities (Beijing Municipal Bureau of Statistics, 2022). Accordingly, this study restricted participant ages to 60-70 years and used semi-structured one-on-one interviews to collect their usage experiences with digital health applications. The study was conducted in accordance with the ethical principles for research involving human participants set out in The Declaration of Helsinki (2013). Participants were required to have basic independent mobility and self-care abilities, no obvious cognitive impairment, ongoing experience with smartphone use, and repeated exposure to digital health applications in everyday life. Based on these criteria, a total of 16 older adults who had prior experience using digital healthcare apps were selected for interviews. The average age of the participants was 62.9 years (SD = 3.31), with a gender ratio of 1:1. The interview guide (Table 1) was developed based on the stage-based information processing theory (Card *et al*., 1983), with questions designed to elicit perceived barriers related to interface elements, information comprehension, and task execution.

Table 1. Interviews guide: Questions for evaluating interaction with a digital medical application

Information processing stage	Sample questions
Perception stage	When interacting with the digital healthcare app interface, which visual elements make it difficult for you to recognise or distinguish information? (e.g., small font size, low contrast)
Cognition stage	When reading information on the digital healthcare app, do you find it difficult to understand or interpret certain content? (e.g., medical terminology, test results, colour codes)
Execution stage	When using the digital healthcare app, what operations do you find confusing or difficult to perform?
	In your experience with the app, which tasks make you feel hesitant or uncertain?
	For improving the app's suitability for older users, in which aspects do you think further improvements can be made?

Source: compiled by the authors

The study selects digital healthcare applications as the research subject, focusing on the information interaction barriers encountered during the stages of perception, comprehension, and execution. Another stage of the study was the development of a relational model based on the theory of step-by-step information processing, linking elderly users, stages of information processing, and interface elements. The model was used to analyse the main functional interfaces of the Chunyu Doctor application and identify the problems faced by elderly users at different stages of interaction. Recommendations were then developed to improve the perception of information by elderly people in applications.

RESULTS AND DISCUSSION

The case app selected for this study is Chunyu Doctor, a mobile health platform integrating health consultations, online medication purchases, and medical services. Figure 1 presented four key functional pages of the app's interface. The home page (Fig. 1a) focuses on quick consultations and frequently used services, including features like "Find a Doctor", "Medicine Delivery", and "Video Consultation". The interface is densely populated with icons and contains promotional banners and multiple navigation modules, which may increase the cognitive load for elderly users during information recognition and interaction. The medication purchase page (Fig. 1b) categorises common drug types and includes a search bar, category navigation, recommended products, and a health lifestyle section. While the functions are clearly laid out, the multi-layered interface may pose a learning barrier for users with declining cognitive abilities. The health information article page (Fig. 1c) provides content in categories such as "Trending", "Expert Insights", and "Daily Life", mainly in text-image format. It supports pull-to-refresh and keyword search, offering low reading thresholds that may help stimulate older users' interest in health knowledge. The AI consultation page (Fig. 1d) features the intelligent assistant Huiwen, which enables natural language interactions to support health inquiries, symptom questions, and medical advice, thus streamlining the operation process. While Chunyu Doctor offers comprehensive healthcare services, its interaction complexity remains relatively high. In aspects such as interface density, icon recognisability, font size, and navigation design, the app presents challenges for elderly users experiencing cognitive decline or visual impairment. Therefore, this app is one of the typical representatives of research on human factors barriers to the use of health mobile apps by older adults.

The results of the study showed that the developed relational model effectively links older users, information processing stages, and specific interface elements, as shown in Figure 2. Thanks to the application of the model, the stages at which elderly users encounter difficulties were identified, as well as the corresponding interface elements, which made it possible to determine the distribution of problems between the stages of interaction with the application.

Figure 1. Chunyu Doctor application interface, China (2025)
Source: Chunyu Doctor (2025)

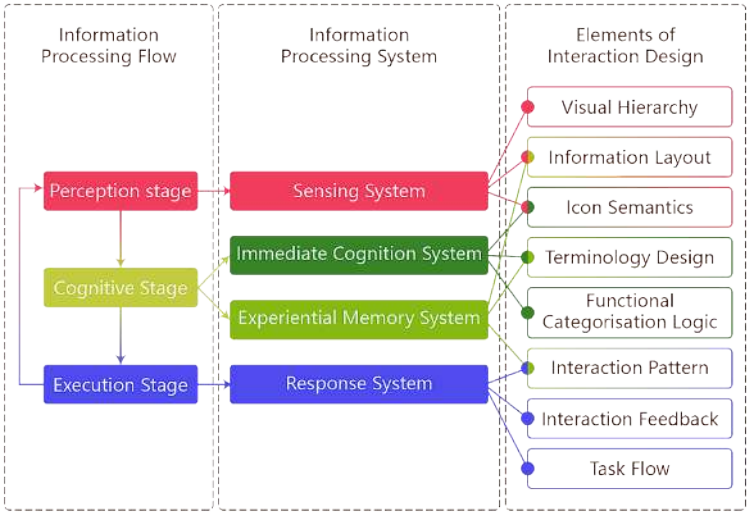

Figure 2. Relationship between the information processing model and interface design elements
Source: drawn by the authors

Through the organisation, refinement, and thematic analysis of interview data from 16 older adults, this study systematically identified typical information processing barriers encountered during the use of digital healthcare apps. The analysis revealed three major categories of problems: information perception barriers, information comprehension barriers, and information execution barriers. Each category is supported by representative quotes from the interview transcripts, reflecting direct feedback from older users regarding interface design, interaction methods, and functional features in real usage contexts. In the perception stage, older users rely on rapid visual scanning and auditory cues to make an initial judgment about "where to look first and where to tap first" on the interface (Table 2). Interviews indicated that the information load and advertising noise were perceived as excessive; typical comments such as "there is too much information on this page" and "there are too many things, it is annoying just to look at it" were used to summarise this problem. Statements like "I cannot read the text clearly" and "I do not understand what the icons mean" reflect problems with the visual legibility of text and icons. Comments such as "the tappable areas and entry cues are not obvious" and "after I tap I still do not know whether anything has happened" indicate missing or unclear entry prompts and action feedback. Reports such as "I cannot clearly hear the sounds played by the app" and "there

is a sound prompt but I can hardly make it out" suggest that auditory feedback is difficult to perceive. Taken together, these expressions point to a situation in which a considerable share of older users' attention has already been consumed by the interface itself before they even start the task.

Table 2. Types of perception stage obstacles and design directions

Obstacle type	Representative quotes	Interpreted meaning	Design direction
Excessive information load and advertising noise	Page information too cluttered	On-screen information stacked with no clear priority	Streamline first-screen information
	Too much content, very annoying	Ads interrupt visual focus	Reduce task-irrelevant ads
	Ads prompting sharing, download and payment		Place main function entries near the visual centre
Poor visual legibility of text and icons	Icons hard to interpret	Icon shapes too abstract	Use more intuitive icons
	Simpler information preferred	Small font and low contrast	Increase foreground-background contrast
	Font too small, tiring to read		Adjust font size and line spacing
Unclear tappable areas and entry cues	Tappable areas and entry cues unclear	No clear response after tapping	Highlight tappable areas with colour blocks
	No clear response after tapping	Feedback after tapping not salient	borders and shadows
	Font too small, tiring to read		Strengthen tap feedback
Poorly perceived auditory feedback	Cannot clearly hear sounds played by the app	Prompt tones difficult to hear clearly	Provide adjustable, easily recognisable sound prompts
	Sound prompts present but barely noticeable		

Source: compiled by the authors

The main interface of Huawei Smart Screen adopts a card-based modular design, and commonly used sections such as video, health and settings are equipped with high-contrast graphics and synchronised voice prompts (Fig. 3). This integrated analysis, moving from "information load and noise" to "visual discrimination", "entry cues" and finally "auditory feedback", shows that the difficulties older adults encounter in the perception stage are not isolated single-point problems but a series of weak links that amplify one another. Corresponding design adjustments therefore need to be considered as coordinated sets rather than only enlarging fonts or simply trimming content.

Figure 3. Huawei's Smart Screen and Honghu operating system
Source: Huawei (2025)

In the cognition stage, older users need to translate the text, icons and sectioned layout on the interface into understandable instructions and steps, and the interview results showed that the obstacles in this process fall mainly into three categories (Table 3). The first category concerns text and terminology that are difficult to understand; participants often remarked "I do not understand what this passage means" and "could it be expressed more clearly?", indicating that technical terms and long sentence structures exceed their immediate comprehension. The second category involves ambiguous icon meanings and weak mapping between icons and text; for example, comments such as "I cannot make sense of the icons" and "I cannot remember what the icons mean, just ignore them" reflect that the correspondence between graphic metaphors and functions is weak and does not support stable memory formation. The third category concerns unclear information structure and navigation logic; many interviewees mentioned that "I often get lost

when using it", "it is hard to find the function I want" and "it is not very convenient to look for functions within a page", suggesting that the way the interface groups functions does not match their task thinking, and that section labels do not clearly indicate the operations they contain.

Table 3. Types of cognition stage obstacles and design directions

Obstacle type	Representative quotes	Interpreted meaning	Design direction
Difficulty understanding text and terminology	Text hard to understand	Wording too abstract	State key information in plain language
	Explanation not clear enough	Weak feedback	Reduce technical terminology
Ambiguous icon meanings and weak icon-text mapping	Icons hard to understand	Weak linkage between icon form and function	Use intuitive icons with short text labels
	Icon meanings not remembered		Apply concrete medicine-related imagery
	Icons simply ignored		
Unclear information structure and navigation logic	Often get lost during use	Information grouping confusing	Simplify section structure
	Hard to find desired functions	Navigation logic unclear	Keep key entry positions stable
	Locating functions within a page not convenient		Downplay distracting content

Source: compiled by the authors

For issues related to text and terminology, research in linguistics and health communication commonly recommends the principles of "easy-to-read language" and "priority for plain-language explanations". T. Okuhara *et al*. (2024) suggested improving comprehensibility by shortening sentences, reducing technical vocabulary and strengthening cues to key information. Regarding the relationship between icons and text, J. Wu *et al*. (2022) found that older adults perform better with icon-label combinations, and that skeuomorphic icons accompanied by text are recognised more quickly and accurately than purely graphical or flat icons. For content such as disease names, medication information and health insurance rules, placing a lay explanation in a prominent position allows older users to first grasp descriptions directly related to symptoms and use, rather than being confronted at the outset with strings of technical terms. In the design of entries for medicines, services and functions, skeuomorphic graphics that resemble real objects, such as medicine boxes, prescription slips and hospital buildings, can be used. Field investigations indicated that older adults have limited ability to interpret charts and are more accustomed to numerical or textual representations. Attaching short labels of two or three characters beneath icons as the main form of explanation enables users to confirm meaning through an "icon plus keyword" combination, rather than relying on memory to guess what the icon stands for. With respect to information structure and navigation logic, Q. Li & Y. Luximon (2019) found that older adults perform better with navigation schemes organised around content areas, whereas interfaces that rely on top or side menus and tab switching make it easier for them to overlook entry points and lose their way in multi-level menus. E. Amouzadeh *et al*. (2025) similarly emphasised that simplified navigation, enlarged text, and error-tolerant interfaces are key design elements that can significantly improve mobile app usability for older adults, highlighting the importance of co-designing applications with older users to address accessibility barriers.

In optimising Chunyu Doctor, online consultation, appointment registration, medication purchase and health insurance reimbursement are treated as four main task lines; it is recommended that the interface structure be reorganised around these lines by reordering sections and entry positions, so that users follow a single path while completing each operation. At the same time, health-information content and promotional campaigns should be placed after the main flows or on secondary pages, in order to avoid inserting excessive detours during task execution. In addition, interface design should further guide users to construct new ways of operating, allowing them to participate to some extent in choosing or defining interaction modes; this supports the smooth transfer of prior experience to new systems and helps foster creative thinking and autonomy. For example, the dial interface of the Xiaomi smart band offers multiple theme styles for users to choose from, which accommodates differences in visual preference, but users cannot customise the specific information shown on the dial, limiting their ability to build personalised cognitive paths based on existing usage habits (Fig. 4).

Figure 4. Xiaomi Smart band and band face configuration interface, China
Source: Xiaomi Smart band watch face settings interface (2024)

When they enter the execution stage, older users are no longer dealing with the problem of "understanding the interface", but with how to turn the instructions they have understood into a sequence of taps, swipes and text entry. Based on the accounts of the 16 participants, difficulties at this stage are mainly concentrated in four areas (Table 4). Interviewees repeatedly commented that "I cannot find the function I want" and "I cannot quickly and accurately locate the operation I need", indicating that key entry points are not salient enough and that the action paths are convoluted and poorly guided. Some also described that "some gesture operations are beyond me", "I cannot accurately hit the icons or buttons" and "pressing for a long time can trigger unintended actions", reflecting a gap between small target areas and complex gestures on the one hand and older users' reduced hand-control abilities on the other. Several participants said that during use they "often cannot get out", that "advertisements interrupt the operation" and that they "forget how to do this", suggesting that the current flows have many branches and deep hierarchies and that cues for going back or exiting are unclear. Verification-code and payment steps introduce an additional layer of tension; some complained that "the verification code expires too quickly", "there is not enough time to enter it" and that "it would be better if there were some feedback telling me whether it has succeeded or not". Taken together, these expressions outline the main pressure points in the execution stage: where to tap, how to tap, within what time frame the operation must be completed, and whether the system gives a clear response afterwards.

Table 4. Types of execution stage obstacles and design directions

Obstacle type	Representative quotes	Interpreted meaning	Design direction
Difficulty locating functions and paths	Cannot find the needed function	Key entry points are hard to locate	Highlight frequent entry points
	Cannot quickly and accurately locate the desired operation		Streamline main paths
Limited touch accuracy and demanding gestures	Some gesture operations impossible	Touch targets small	Enlarge touch targets
	Icons or buttons hard to hit accurately	Gesture set complex	Simplify gestures
	Long press often triggers unintended actions		
Lengthy flows with many branches and difficult exits	Some steps hard to exit	Too many branches	Linearise key flows
	Some steps hard to exit	Easy to get lost	Reduce interruptions
Tight time limits and insufficient feedback	Verification-code time too short	Time pressure	Relax time thresholds
	Code expires before entry is completed	Weak feedback	Strengthen feedback on operations
	Preference for some physical feedback		Relax time thresholds

Source: compiled by the authors

Existing research has proposed a range of optimisation measures from the perspectives of motor control and error-tolerance mechanisms. With regard to touch accuracy and gestures, T. Phiriyapokanon (2011) reported that older adults' tapping accuracy improves markedly when target size is no smaller than approximately 16.5*16.5 mm, but that enlarging buttons alone does not fully resolve the problem and must be combined with appropriate layout and clear feedback. When comparing drag, pinch and double-tap gestures on smartphones of different sizes, T.-H. Tsai *et al.* (2017) likewise found that older adults perform worst under

complex gestures and small-screen conditions, and recommended reducing multi-finger and long-press operations for older users while prioritising single taps and simple swipes. These studies indicated that optimising the execution stage is less about re-emphasising "being able to see" and more about lowering the precision required for each action and reducing dependence on memory and reaction speed. C. Zhou *et al.* (2022) further found that the design of mobile app interfaces, including layout, colour, and icon placement, significantly influences task performance among older adults, with simpler, clearer layouts and appropriate icon sizes improving task completion times and user experience. P.-C. Yeh (2020) demonstrated that increasing font size to 22 pt and positioning buttons at the top of the interface significantly improved task performance for older adults, suggesting that interface design can enhance usability and independence in older populations. Focusing on flow structure and time pressure, G.A. Wildenbos *et al*. (2019) systematically analysed how older patients used two mHealth applications and proposed an "aging barriers model", arguing that excessive steps, frequent context switching and opaque navigation structures cause users to become repeatedly lost and interrupted in the execution stage. C.N. Harrington *et al*. (2017) treated "error tolerance" as a core indicator of age-friendly interfaces and showed that generous time settings, reversible operations and explicit confirmation prompts can ease users' anxiety about making mistakes. In the execution stage, allowing users to proceed more slowly and to recover from occasional errors is more critical than simply pushing for higher accuracy.

To address "difficulty locating functions and operation paths", the interface should no longer rely on a single home-page entry but instead keep the position of the "next step" button stable along each care pathway, so that older users can move in the same direction through consultation, examinations and medication pickup, while non-essential options such as sharing, rating and promotions are postponed to the end of the flow or collapsed. To address "limited touch accuracy and demanding gestures", and drawing on studies of button size and gesture performance, key actions should be standardised as single-tap triggers, with hidden menus avoided for long-press and double-tap gestures, and the apparent tappable area visually expanded so that slight deviations are still treated as valid hits. Online consultation and medication-purchase flows can be divided into several clear stages, with a brief stage label at the top of each screen and prominent "back to previous step" and "save and continue later" buttons below, in order to mitigate the problem of "lengthy flows with many branches that are hard to exit". In relation to "tight time limits and insufficient feedback", the present study advocates extending the valid time for sensitive operations such as verification codes and providing salient remaining-time indicators that offer advance warnings before expiry rather than only error messages afterwards; at key points such as submitting a prescription or completing payment, obvious colour changes and short audio cues should be added, and where necessary a concise text message in the centre of the screen should restate the outcome.

CONCLUSIONS

This study used the Chunyu Doctor app as a case and combines the stage-based information processing theory with interviews with older users to trace information-interaction barriers in digital health apps across the perception, cognition and execution stages, and to anchor these problems in specific interface elements such as visual hierarchy, text and terminology, icon semantics, information grouping, task flows and feedback cues. The findings showed that, even before entering medical tasks, older users have their attention consumed by information load and advertising noise, and that during the comprehension stage they are repeatedly disrupted by technical terminology, icon meanings and navigation logic. At the execution stage they tend to become stuck at points where function locations are unclear, gesture operations are demanding, task flows are lengthy and time limits are tight. These problems are not isolated defects but a chain of vulnerabilities around being able to see the interface, understand it and carry out actions, which has a tangible impact on confidence in seeking care and on willingness to operate independently. In response to these observations, this paper proposed stage-specific strategies for streamlining information, rewriting key text and restructuring navigation around the care-seeking process, together with more relaxed time settings and clearer multimodal feedback at key steps, providing directly applicable guidance for age-friendly evaluation and interface optimisation of future digital health apps. There remains scope for further work in extending the range of application types and in testing the effects of different design solutions.

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CONFLICT OF INTEREST

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Інклюзивні стратегії дизайну для літніх користувачів цифрових медичних послуг

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Анотація. Цифрові додатки для охорони здоров'я стали звичними інструментами для літніх людей для реєстрації на прийом, оплати медичних послуг та придбання ліків, проте багато інтерфейсів все ще вимагають значних когнітивних та операційних зусиль. Метою цього дослідження було виявити перешкоди в обробці інформації, з якими стикаються літні люди під час використання китайського мобільного додатку для охорони здоров'я «Chunyu Doctor», та запропонувати стратегії для вдосконалення інтерфейсу на основі етапів. 16 дорослих віком 60-70 років, які раніше мали досвід користування додатками для здоров'я, пройшли напівструктуровані індивідуальні інтерв'ю під час виконання завдань з консультації, придбання ліків та розрахунку за страховку. Транскрипти інтерв'ю були тематично закодовані та розподілені на три етапи взаємодії: сприйняття, когнітивні процеси та виконання. Аналіз показав, що бар'єри сприйняття виникають через перевантаженість екранів, погану читабельність тексту та іконок, неоднозначні області, на які можна натиснути, та ледь помітні звукові підказки. Когнітивні бар'єри пов'язані з технічною термінологією, яка перевищує рівень миттєвого розуміння, метафорами піктограм, які не дають надійного сигналу про функцію, та структурою розділів, яка суперечить логіці завдань користувачів. Бар'єри виконання зосереджені на складності пошуку ключових функцій, складних жестових операціях, довгих розгалужених потоках та жорстких часових обмеженнях на таких етапах, як перевірка кодів. На цій основі в дослідженні були запропоновані стратегії дизайну для конкретних етапів, які реорганізують навігацію навколо медичних завдань, переписують критичний текст простою мовою, коригують набори піктограм і групування, а також послаблюють часові обмеження та обмеження щодо зворотного зв'язку. Результати пропонують процесну основу для оцінки та поліпшення взаємодії, зручної для людей похилого віку, в цифрових медичних послугах

Ключові слова: модель обробки інформації; бар'єри взаємодії; зручність для людей похилого віку; когнітивне навантаження; користувальницький інтерфейс