Acceptance of E-Health among the Elderly in Nantong China Based on the Technology Acceptance Model

Xue Jing & Mohd Zulfabli Hasan

Faculty of Management, Universiti Teknologi Malaysia, Johor Bahru, Malaysia

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ABSTRACT

As China's population ages, Nantong City faces severe challenges. Deep aging places enormous pressure on the healthcare system. E-health uses digital technology to improve care efficiency, which is expected to ease this burden. However, adoption rates among older adults remain low, constrained by perceptions of low utility, difficulty in use, negative attitudes, and social influences. This study, grounded in the Technology Acceptance Model, aims to investigate the acceptance of E-health systems among Nantong's elderly population. A cross-sectional survey using a structured questionnaire measured perceived usefulness, perceived ease of use, attitudes toward use, social influence and behavioral intention to use. This study was conducted through deductive surveys and questionnaire surveys. The research method used is convenience sampling. Its foundational theory is the technology acceptance theory. The population consists of elderly people aged 65 and above in Nantong City, Jiangsu Province, China, totaling 1,968,200. The sample size was 385 people. This study used SPSS software for descriptive analysis, reliability-validity analysis, correlation analysis, and multiple regression analysis. This study demonstrates that four dimensions of acceptance of e-health use among older adults (perceived usefulness, perceived ease of use, social influence, attitudes toward use) are significantly positively correlated with behavioral intention to use.

Keywords: Technology Acceptance Model, Elderly, E-health, Nantong

INTRODUCTION

According to data from the Seventh National Population Census, China has 260 million older adults, accounting for 18.7% of the national population, which is significantly higher than the global average of 12.8%. China's aging population is accelerating and has reached the threshold of a deeply aged society defined by the United Nations (Wang, T., 2025). This trend is particularly evident in Nantong City, Jiangsu Province, and poses increasing challenges for healthcare and long-term care services (Oderanti et al., 2021). The emergence of E-health has effectively eased the pressure on the medical industry. E-health, which refers to the application of information and telecommunications technology in healthcare (Cobelli et al., 2024), has become an important approach to improving the accessibility, responsiveness, affordability, and efficiency of healthcare services through systems such as electronic health records, mobile health, telemedicine, and smart hospitals (Al-Sharhan et al., 2019). Moreover, E-health continues to transform healthcare delivery worldwide by making health systems more responsive to people's needs and expectations (Cobelli & Blasioli, 2023). Despite its considerable potential to improve healthcare access and service delivery for older adults, the adoption of E-health remains limited (Wilson et al., 2021). Studies have shown that older adults generally demonstrate lower engagement with E-health because they perceive it as less effective in improving their health (Omar et al., 2023). Furthermore, low educational attainment contributes to poor health and digital literacy, making E-health more difficult to use (Wu & Peng, 2025). Social influences also affect E-health usage (He, J. L. et al., 2023), while older adults tend to hold relatively negative attitudes toward using E-health (Tu et al., 2021). Therefore, this study adopts the Technology Acceptance Model to investigate the key factors influencing older adults' acceptance of E-health. By identifying these barriers, the study aims to provide practical recommendations for developing more effective and user-friendly E-health services and improving E-health acceptance among older adults.

LITERATURE REVIEW

Behavioral Intention to Use: Behavioral intention to use is defined as a trend of behavior that continues to

apply technology (Natasia et al., 2021). Behavioral intention to use is also defined as an individual's perception on the possibility of using a particular technology (Guner & Acarturk, 2020). Behavioral intention to use or can further be defined as an individual's inclination to initiate and sustain the utilization of a particular technology (Börekci & Çelik, 2024). Despite their differences, all definitions converge on a consensus: Behavioral Intention to Use is an individual's personal will regarding whether to continue using a technology in the future. This core meaning preserves conceptual parsimony. Therefore, the present study retains the original definition—behavioral intention to use is the intention of individuals to continue using a technology in the future.

Perceived Usefulness: Alismaiel et al. (2022) define perceived usefulness as the degree to which users believe that technology may assist them in achieving objectives, emphasizing the instrumental value of technology. In contrast, Fahrur Riza and Hafizi (2019) define it as an individual's subjective assessment of the utility provided by new information technology products, focusing more on subjective utility perception. In this study, perceived usefulness is defined as whether elderly users in Nantong City think that learning E-health services is simple and convenient. Whether it requires less effort when learning and operating. When users find that a certain technology or product is more useful, they will develop a positive behavioral intention to use. Therefore, Hypothesis 1 states as follows:

H1: Perceived usefulness has a significant positive influence on elderly users behavioral intention to use E-health.

Perceived Ease of Use: Alismaiel et al. (2022) define perceived ease of use as the degree to which consumers believe that utilizing technology is straightforward, stressing intuitiveness of operation. Fahrur Riza and Hafizi (2019) describe it as an indicator of the cognitive effort required to learn and use information technology products, thereby providing a more quantifiable dimension "effort." The latter offers greater operational potential, while the former aligns more closely with older adults' everyday understanding of "simplicity." In this study, perceived ease of use is defined as whether elderly users in Nantong City think that E-health will help improve the efficiency of health management, and whether the software is useful. When users perceive a technology or product as easy to use, they will develop a positive at behavioral intention to use in the future. Therefore, Hypothesis 2 states as follows:

H2: Perceived ease of use has a significant positive influence on elderly users behavioral intention to use E-health.

Social Influence: Social influence is an important extension variable introduced in the evolution of technology acceptance model theory. Older people will change their use of E-health due to social influences. Lu & Tsai-Lin (2024) define social influence as the degree to which older people perceive that significant others who influence them believe they should use E-health services. Venkatesh, V. & Bala, H. (2008) define social influence as an individual's subjective perception of how people close to him or her will view the use of a certain technology. In this study, social influence is defined as the extent to which older people are influenced by people they consider important to use E-health. Social influence affects the behaviors of older adults using E-health. Therefore, Hypothesis 3 states as follows:

H3: Social influence has positive influence on elderly users behavioral intention to use E-health.

Attitude Toward Use: Alismaiel et al. (2022) define attitude toward use simply as an individual's positive or negative behavior, which fails to capture the evaluative essence of attitude. Fahrur Riza and Hafizi (2019) more accurately define it as the degree of a positive or negative assessment by users, better reflecting attitude as an evaluative judgment. In this study, perceived ease of use is defined as the positive or negative tendency of the elderly in Nantong to use E-health. Guner and Acarturk (2020), in their comparative study on technology acceptance between elderly and young adults using the TAM model, found that attitude toward use

has a significant direct positive influence on behavioral intention to use. Therefore, Hypothesis 4 states as follows:

H4: Attitude toward use has influence on elderly users behavioral intention to use E-health.

Based on the discussions above, a conceptual framework is developed, as shown in Figure 1.

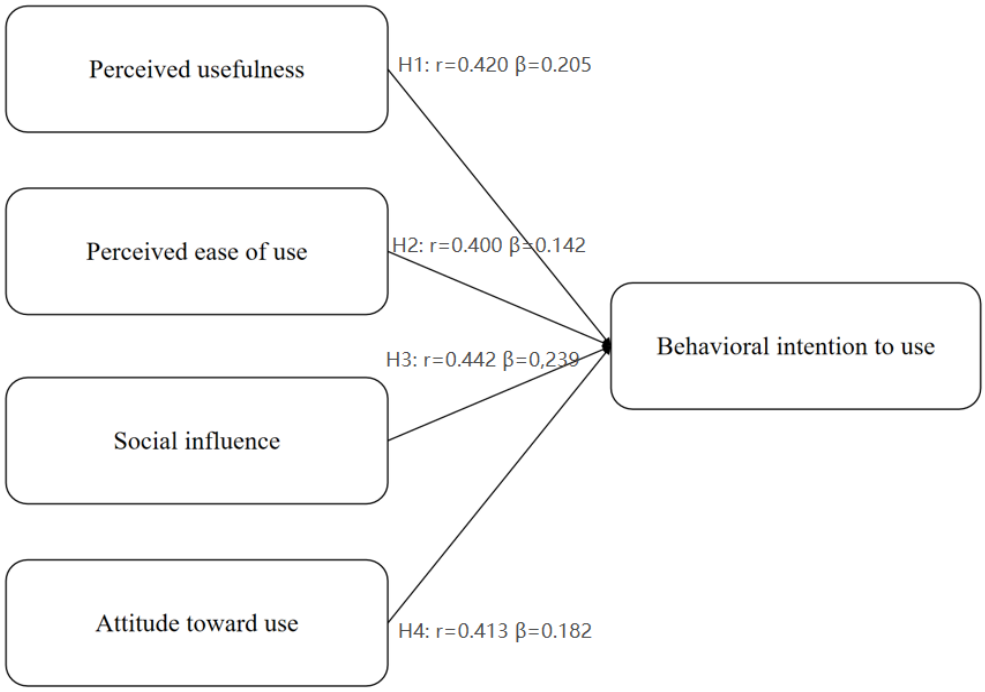

Figure 1: Conceptual Framework Factor Influence Behavioral Intention to Use

Based on the Technology Acceptance Model (Davis, 1989) and the extended technology acceptance model. The theoretical framework adopting a direct-effects model in which perceived usefulness, perceived ease of use, social influence, and attitude toward use are each modeled as direct predictors of behavioral intention to use E-health.

Underpinning Theory: Technology Acceptance Theory

The Technology Acceptance Theory was proposed as a means of facilitating an understanding of the ways in which individuals utilise and accept a specific technology. It was developed from the theory of reasoned action. It encompasses a wide range of subjects, including work, transportation, food, information, education, medicine, and more. The theory posits that an individual's intentions towards learning to use new technology are shaped by their evaluations of the perceived relevant advantages of the technology in question. If employees perceive technology systems as beneficial and straightforward to utilise, they will accept and employ the technology (Kaya & Gezmisoglu Sen, 2025). In this study, elderly people evaluated the usefulness and ease of use of the software when using E-health to some extent. Ultimately, it will affect whether they continue to use e-health in their future lives.

METHODOLOGY

The survey included 385 people in the Nantong City, Jiangsu Province, China region who had used E-health in the last three months. In Nantong City, the most active WeChat and Tik Tok groups were selected to collect data. Respondents responded using Google Form. Respondents submit their answers to form the final data. Use these completed Form for data analysis. In this study, the SPSS was used to evaluate reliability and validity, descriptive analysis, correlation analysis and multiple regression analysis. In terms of measurement, this study draws on questionnaires from previous studies. Respondents used a 5-point Likert scale to assess their level of agreement with the question, ranging from 1 (strongly disagree) to 5 (strongly agree).

Ethical Considerations

All participants in this study were fully informed of the purpose of the study, the voluntary nature of their participation, and their right to withdraw from the study at any time without conditions. Informed consent was obtained from every participant before data collection. To ensure confidentiality, all responses have been anonymized, and personal identifiers have been removed during data processing. Data will be securely stored and used solely for academic research purposes.

Reliability and Validity Analysis

The reliability and validity of the questionnaire were assessed before distributing the questionnaire to the full sample. In this study, preliminary tests were conducted. This initial test aims to identify questions with weaknesses or ambiguities in the questionnaire, ensuring that each question can effectively respond to the research objectives. A total of 40 respondents participated in the initial test and their feedback was carefully analyzed to refine the questionnaire. This can significantly improve the accuracy of each question. Cronbach's Alpha was used to test the reliability of the questionnaire. If the value of the α is greater than 0.8 and less than 0.9, it indicates that the data in this study have reached the level of Good. Table 1 shows the α values for each variable in this study.

Table 1 Reliability Statistics

Variable	Number of Question	Cronbach's Alpha (α)
Perceived Usefulness	5	0.894
Perceived Ease of Use	5	0.815
Social Influence	4	0.839
Attitude Toward Use	5	0.861
Behavioral Intention to Use	5	0.904

The α value of Perceived Usefulness is 0.894, indicating that the data has reached the reliability level of Good. Perceived Ease of Use's α value is 0.815, indicating that this data has reached Good's reliability level. The α value of Social Influence is 0.839, indicating that the data meets the reliability level of Good. The α value for Attitude Toward Use is 0.861, indicating that the data has reached the reliability level of Good. The α value for Behavioral Intention to Use is 0.904, indicating that this data meets the reliability level of Good. According to Table 1, it can be found that the overall results of this experiment show that the reliability level of each variable reaches the good level. Therefore, the experimental data of this experiment are reliable.

Validity analysis is used to determine if each item is properly aligned with its intended construct. If the CITC value is greater than 0.5, it is considered good, while if it is greater than or equal to 0.7, it is considered excellent. Table 2 shows the CITC values for all the entries for the variables targeted in this study.

Table 2 Validity Analysis

Variables	Items	Corrected Item-Total Correlation
Perceived Usefulness	Perceived Usefulness 1	0.657
	Perceived Usefulness 2	0.727
	Perceived Usefulness 3	0.802
	Perceived Usefulness 4	0.706
	Perceived Usefulness 5	0.812
Perceived Ease of Use	Perceived ease of use 1	0.604
	Perceived ease of use 2	0.646
	Perceived ease of use 3	0.588
	Perceived ease of use 4	0.552
	Perceived ease of use 5	0.631
Social Influence	Social influence 1	0.793
	Social influence 2	0.680

	Social influence 3	0.599
	Social influence 4	0.619
Attitude Toward Use	Attitude toward use 1	0.659
	Attitude toward use 2	0.658
	Attitude toward use 3	0.709
	Attitude toward use 4	0.641
	Attitude toward use 5	0.726
Behavioral Intention to Use	Behavioral intention to use 1	0.779
	Behavioral intention to use 2	0.762
	Behavioral intention to use 3	0.680
	Behavioral intention to use 4	0.791
	Behavioral intention to use 5	0.789

The CITC values for all entries were well above 0.5, which means that the measurement tools in this study have satisfactory validity and are suitable for use in this study.

Descriptive Analysis

Descriptive statistics are used to describe the situation of respondents. The respondents in this study were elderly people aged 65 and above from Nantong City, Jiangsu Province, who had been using E-health for the past three months. The demographic background section includes various basic attributes of respondents, such as gender, age, frequency of E-health use, and proficiency in E-health use. Table 3 shows the data on the demographic background of the respondents.

Table 3 Demographic Background Data

Variables		**Frequency**	**Percentage (%)**
Gender	Male	191	49.61
	Female	194	50.39
Age	65 to 69 years old	184	47.79
	70 to 74 years old	112	29.10
	75 to 79 years old	61	15.84
	80 years old and above	28	7.27
The frequence of using E-health	Never use	0	0
	Rarely use	108	28.05
	Several times a month	115	29.87
	Several times a week	83	21.56
	Every day	79	20.52
Proficiency in using the E-health	Not proficient at all	20	5.19
	Not very proficient	101	26.23
	Generally	104	27.02
	Proficient	106	27.53
	Very Proficient	54	14.03

As can be seen from Table 3, the gender distribution of respondents in this study was relatively balanced. Among 385 respondents. There were 191 male respondents, accounting for 49.61% of the total respondents. There were 194 female respondents, accounting for 50.39% of the total respondents.

Most respondents in this study were in the 65 to 74 age range. Among them, 184 respondents aged 65 to 69 were present, accounting for 47.79% of the total respondents. There were 112 respondents aged 70 to 74, accounting for 29.10% of the total respondents. The number of respondents aged 75 to 79 ranked third, with 61 respondents, accounting for 15.84% of the total respondents. The smallest age group was 80 and above, with only 28 people, accounting for 7.27% of all respondents.

Table 3 shows that 385 respondents have the habit of using E-health. Among them, 115 respondents use it monthly, accounting for 30% of the total respondents. 108 respondents rarely used it, accounting for 28% of all respondents. 83 respondents use E-health weekly, accounting for 22% of the total respondents. Only 79 respondents were using E-health every day, accounting for 20% of the total respondents.

Table 3 also shows respondents' proficiency in using E-health. Among them, 106 respondents are proficient in using E-health. Accounting for 27.53% of all respondents. 104 respondents reported average proficiency in using E-health, accounting for 27.02% of all respondents. 101 respondents felt they were not very proficient in using E-health, accounting for 26.23% of all respondents. A small portion of respondents considered themselves very proficient in using E-health; 54 respondents in this group accounted for 14.03% of the total. Only 20 respondents felt they were not proficient at all using E-health, accounting for 5.19% of all respondents.

In this study, four variables (Perceived Usefulness, Perceived Ease of Use, Social Influence, and Attitude Toward Use) and Behavioral Intention to Use were used as the research variables in this study. Table 4 shows descriptive statistics on the TAM dimension.

Table 4 Descriptive statistics for each variable

Variables	Mean	SD
Perceived Usefulness	3.37	0.92
Perceived Ease of Use	3.25	0.96
Social Influence	3.31	0.94
Attitude Toward Use	3.28	0.96
Behavioral Intention to Use	3.26	0.98

As shown in Table 4, the mean values for each dimension are between 3.25 and 3.37. Among the five variables, the variable with the highest average value was perceived usefulness, with an average of 3.37. This value is slightly above the median value of 3, indicating that elderly people generally consider E-health to have some utility, but their level of positivity is moderately low. The socially influenced average was 3.31, slightly below the average perceived usefulness. This indicates that the overall impact from family, friends, or healthcare workers is positive but not very strong, and the elderly feel a certain encouragement or expectation. The average values for Attitude toward use, behavioral intention to use, and perceived ease of use were similar, at 3.28, 3.26, and 3.25, respectively. Among the five variables, the average value of perceived ease of use was the lowest, indicating that elderly people generally feel that E-health operations are not particularly simple and difficult to learn, with ease of use being the main barrier. In summary, the average values of all variables ranged between 3.25 and 3.37, but none reached the 4-point level, indicating that there is still considerable room for improvement in the acceptance of E-health among the elderly in Nantong.

About standard deviation, the standard deviation of behavioral intention to use is the largest among the five variables, with a value of 0.98. This shows that the divergence in behavioral intention to use is the most severe. Some elderly people are very willing, while others are completely unwilling, with many attitudes falling between the two. The standard deviation values for perceived ease of use and attitude toward use were consistent, reaching 0.96. This means there is a significant polarization between these two variables. Some people think E-health is not easy to use and have a passive attitude toward using it. Others believe that E-health is easy to use and adopt it positively. The standard deviation for social influence is 0.94. This shows that elderly people vary greatly in the degree of influence from those around them. The standard deviation of perceived usefulness is the lowest among the five variables, with a value of 0.92. This indicates that elderly people are somewhat divided on whether E-health is useful.

Correlation Analysis

In order to examine the relationship between the four independent variables (Perceived Usefulness, Perceived Ease of Use, Social Influence, and Attitude Toward Use) and Behavioral Intention to Use, Pearson correlation

analysis was used in this study. The purpose of correlation analysis is to determine if there is a linear relationship between variables, the direction of the relationship, and the strength of the relationship. Correlation analysis was performed using SPSS software. The significance level is set to α=0.01. The analysis results of the four independent variables and Behavioral Intention to Use are shown in Table 5.

Table 5 Correlation Analysis

Variable	Pearson Correlation Coefficient (r)	Significance	Relevant strength
Perceived Usefulness	0.42	< 0.001	Moderate correlation
Perceived Ease of Use	0.4	< 0.001	Moderate correlation
Social Influence	0.442	< 0.001	Moderate correlation
Attitude toward use	0.413	< 0.001	Moderate correlation

From Table 5, the results showed that Perceived Usefulness, Perceived Ease of Use, Social Influence, Attitude toward use and Behavioral intention to use had positive and significant correlations. Among them, Social Influence had the highest correlation with behavioral intention to use. Perceived ease of use had the lowest correlation with behavioral intention to use.

Multiple regression analysis

Multiple regression is a form of regression analysis that performs the results of correlations between two or more variables. To study which factors influence older adults' acceptance of E-health, multiple linear regression analysis was used in this study. The regression model is constructed with four dimensions, namely Perceived Usefulness, Perceived Ease of Use, Social Influence, and Attitude toward use, as independent variables and behavioral intention to use as dependent variables. The coefficient results are shown in Table 6.

Table 6 Coefficients Results

	Unstandardized Coefficients		Standardized Coefficients	t	Sig	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
Constant	0.655	0.199		3.293	0.001		
Perceived Usefulness	0.219	0.052	0.205	4.213	0	0.752	1.329
Perceived Ease of Use	0.144	0.051	0.142	2.824	0.005	0.727	1.376
Social Influence	0.248	0.05	0.239	4.96	0	0.755	1.324
Attitude toward use	0.184	0.05	0.182	3.68	0	0.73	1.369

According to Table 6, perceived usefulness has a significant positive effect on behavioral intention (B = 0.219, β = 0.205, t = 4.213, p < 0.001). This indicates that when elderly people believe that E-health services can improve the efficiency and convenience of their health management, their intention to use them increases significantly. Therefore, it is assumed that H1 is supported. Perceived ease of use also had a significant positive effect on behavioral intention to use (B = 0.144, β = 0.142, t = 2.824, p = 0.005). The results indicate that when electronic health systems are considered easy to learn and operate, elderly people's willingness to use them increases. Therefore, it is assumed that H2 gained support. Social influence showed a significant positive effect on behavioral intention to use (B = 0.248, β = 0.239, t = 4.960, p < 0.001). Among all predictors, social influence had the highest standardized regression coefficient (β = 0.239), indicating the most significant effect on behavioral intention to use. This indicates that advice and support from family members, friends, and healthcare professionals can effectively promote the use of electronic health services by seniors. Therefore, it is assumed that H3 gained support. Attitude toward use also had a significant positive effect on behavioral intention to use (B = 0.184, β = 0.182, t = 3.680, p < 0.001). The results indicate that the more positive older adults are toward e-health services, the stronger their intention to use them in the future. Therefore, it is assumed that H4 gained support. By comparing the results of standardized regression coefficients (β), the rankings of the influence of each variable on behavioral intention to use were as follows:

social influence (β = 0.239), perceived usefulness (β = 0.205), usage attitude (β = 0.182), and perceived ease of use (β = 0.142).

The VIF values for each variable ranged from 1.324 to 1.376, and the tolerance value ranged from 0.727 to 0.755, all meeting the statistical recommendation criteria. This indicates that the model does not have multicollinearity issues, and each regression coefficient has good stability and reliability.

In conclusion, according to the results of the multiple linear regression analysis in this study, the regression model established reached a statistically significant level ($p<0.001$). The model's coefficient of determination (R^2) is 0.322, indicating that perceived usefulness, perceived ease of use, social influence, and attitude toward use can jointly explain 32.2% of the variation in behavioral intention to use, demonstrating strong explanatory ability. The results further show that all four independent variables have a significant positive effect on behavioral intention to use. Among these, social influence has the greatest impact, followed by perceived usefulness, attitude toward use, and perceived ease of use. Additionally, the VIF values for all variables were below the recommended standards, indicating that the model does not have multicollinearity issues. Therefore, all research hypotheses proposed in this study are supported.

DISCUSSION

This study found that perceived usefulness, perceived ease of use, social influence and attitude toward use are significantly positively correlated with behavioral intention to use.

The data shows that the average value of perceived usefulness is the highest among the five variables. This indicates that elderly respondents generally consider e-health to be useful. However, there is a considerable degree of heterogeneity within the elderly. Pearson correlation analysis showed that the correlation coefficient between perceived usefulness and behavioral intention to use was $r = 0.420$, and the significance level was $p < 0.001$, indicating a moderate positive correlation between the two. According to Evans (1996) standards, a correlation coefficient between 0.40 and 0.59 is considered moderately positive. This means that higher perceived usefulness of E-health services is associated with stronger behavioral intention to use among older adults. Multiple linear regression analysis further showed that, even after controlling for the influence of other independent variables, perceived usefulness can still significantly predict behavioral intention to use. The results show that the standardized regression coefficient is $\beta = 0.205$ ($B = 0.219$, $t = 4.213$, $p < 0.001$), indicating that for every one unit increase in perceived usefulness, behavioral intention to use also increases accordingly. Among the four predictor variables, perceived usefulness is the second largest influencing factor after social impact. Therefore, the results of this study fully support hypothesis H1: Perceived usefulness has a significant positive influence on elderly users behavioral intention to use E-health. Martín-García, Redolat, and Pinazo-Hernandis (2022) found that perceived usefulness is one of the key predictors influencing the adoption of health-related technologies among older adults. Research shows that when older adults believe E-health technologies can improve health management efficiency, facilitate communication with healthcare professionals, and enhance their own health management skills, their willingness to use these technologies increases significantly. Based on these findings, service providers should continuously enhance the practical value of the platform, such as adding features like online consultation, health monitoring, medication reminders, and personalized health advice to meet the actual needs of seniors. By improving the practicality of

E-health services, behavioral intentions among older adults can be further improved, and widespread adoption of E-health services can be promoted.

The data shows that the average perceived ease of use is the lowest among the five variables. However, there are significant differences in perceived convenience among older adults. Pearson correlation analysis showed that the correlation coefficient between perceived ease of use and behavioral intention to use was $r = 0.400$, and the significance level was $p < 0.001$. According to Evans (1996) criteria, a correlation coefficient between 0.40 and 0.59 was considered moderate positive correlation. This indicates a moderate degree of positive correlation between the two. This indicates that higher perceived ease of use of E-health services is associated with stronger behavioral intention to use among older adults. Multiple linear regression analysis showed that after controlling for other variables, perceived ease of use could still significantly predict behavioral usage

intention, with a standardized regression coefficient of $\beta = 0.142$ ($B = 0.144$, $t = 2.824$, $p = 0.005$). Although perceived ease of use had a relatively weak effect among the four independent variables, its impact was still statistically significant. Therefore, the results of this study fully support hypothesis H2: Perceived ease of use has a significant positive influence on elderly users behavioral intention to use E-health. Wilson et al. (2021), in a systematic review of electronic health usage barriers and facilitating factors in older adults, pointed out that perceived ease of use is one of the important factors influencing elderly access to E-health services. Research has found that complex operating procedures, unfriendly interface design, and insufficient digital skills reduce elderly people's willingness to use E-health services. In contrast, electronic health systems that are simple to operate, with clear interfaces and easy navigation can significantly improve seniors' acceptance and intentions. Based on these findings, E-health service providers should place greater emphasis on senior-friendly design, such as using larger fonts, simplifying function menus, providing clear operation instructions, adding voice assistance, and designing step-by-step workflows. By reducing the difficulty of using electronic health platforms, it can effectively improve the perceived ease of use among the elderly, thereby strengthening their behavioral intention to use the platform.

The data shows that the average value of social influence ranks second among the five variables. However, there are significant differences in the degree to which older adults feel the impact of family, friends, and healthcare professionals. Pearson correlation analysis showed that the correlation coefficient between social influence and behavioral intention to use was $r = 0.442$, with a significance level of $p < 0.001$. According to Evans (1996), a correlation coefficient between 0.40 and 0.59 was considered moderately positive, indicating a moderate degree of positive correlation between the two. It also shows that when elderly people receive more support and encouragement from family members, friends, or healthcare professionals is associated with stronger behavioral intention to use among older adults. Furthermore, multiple linear regression analysis showed that after controlling for the influence of other variables, social influence still significantly predicted behavioral intention to use, with a standardized regression coefficient of $\beta = 0.239$ ($B = 0.248$, $t = 4.960$, $p < 0.001$). Among all independent variables, social influence had the highest standardized regression coefficient, indicating it is the most important predictor of the intention to use E-health services among the elderly. Therefore, the results of this study support hypothesis H3: Social influence has positive influence on elderly users behavioral intention to use E-health. Alam, M. Z., Alam, M. S., and Sultana, M. (2022) conducted an experiment based on a sample of 428 elderly people and found that social influence has a significant positive effect on the intention to accept digital health technologies. For the elderly, social influence is especially important. This is because elderly people often rely more on the guidance and assistance of family members and professional medical staff when adopting new technologies. Based on these research findings, E-health service providers, medical institutions, and government departments should actively play the role of social support networks. Community outreach activities, family health education programs, and digital health promotion programs can raise awareness of E-health services among the elderly and their families. Doctors, nurses, and other medical professionals should proactively recommend electronic health services to elderly patients during daily diagnosis and treatment and provide necessary usage guidance. Family members can also assist seniors in learning and using electronic health apps. By strengthening social support and social recognition, it can effectively increase the behavioral intention of elderly people to use E-health services and promote the continued application of E-health technologies.

The data shows that the average attitude toward use ranks third among the five variables. However, many elderly people hold neutral or even negative attitudes toward e-health, with only a few expressing strong positive evaluations. Pearson correlation analysis showed that the correlation coefficient between attitude toward use and behavioral intention was $r = 0.413$, with a significance level of $p < 0.001$. According to Evans (1996), a correlation coefficient between 0.40 and 0.59 is considered moderately positive, indicating a moderate degree of positive correlation between the two. It also shows that the more positive the attitude elderly people have toward E-health services, the higher their intention to use them. Multiple linear regression analysis showed that after controlling for other variables, usage attitude still significantly predicted behavioral intention, with a standardized regression coefficient of $\beta = 0.182$ ($B = 0.184$, $t = 3.680$, $p < 0.001$). Among the four independent variables, attitude toward use ranked third, just behind social influence and perceived usefulness. Therefore, the results of this study support the hypothesis H4: Attitude toward use has influence on elderly users behavioral intention to use E-health. Wang et al. (2023) studied elderly Chinese people and found

that attitude has a significant positive effect on behavioral intention to use mobile medical applications. Research indicates that when older adults have a more positive attitude toward digital health technologies, their intention to use them also increases significantly. For the elderly, a proactive attitude can reduce resistance to new technologies and increase acceptance of E-health services. Based on these research findings, E-health service providers should strive to enhance user experience and cultivate a positive attitude toward E-health services among the elderly. User satisfaction can be enhanced by improving system stability, strengthening personal privacy and data security protection, optimizing service quality, and providing timely and effective technology support. By establishing a positive attitude toward use, it can further enhance the behavioral intention of elderly people to use the service and promote the popularization and sustainable development of E-health services.

LIMITATION

This study provides some suggestions for future research. First and foremost, the study sample was limited to elderly people who had used E-health services in the past three months. Therefore, the findings reflect the perceptions, attitudes, and behavioral intentions of existing e-health users, rather than the general elderly population. Second, this study only targeted elderly people in Nantong City, Jiangsu Province, so the results may not fully represent the acceptance of E-health services by elderly groups in other regions or even countries. Third, this study adopts a cross-sectional study design, with all data collected at the same time point. Fourth, this study only explores the effects of four independent variables (perceived usefulness, perceived ease of use, social influence, and attitude toward use) on behavioral intention to use. This suggests that there are still other underlying factors that may influence older adults' intention to use E-health services. Finally, this study is subject to common method bias. All constructs were measured using self-reported Likert scales collected at a single time point, which may lead to inflated correlation estimates due to consistent response tendencies.

CONCLUSION

This research discusses the results in depth around four research objectives and hypotheses. The results confirm that perceived usefulness, perceived ease of use, social influence, and attitude toward use all show significant positive correlations with the intention to use E-health services among the elderly. Among these, social influence is the most important influencing factor, followed by perceived usefulness, attitude toward use, and perceived ease of use. The findings are generally consistent with existing literature and further validate the applicability of the technology acceptance model in explaining the acceptance behavior of E-health services among the elderly. In addition, this research also presents relevant management recommendations, research limitations, and future research directions. Theoretically, this study extends the application of the Technology Acceptance Model in the context of elderly E-health acceptance in China’s deeply aging cities, and confirms the key role of social influence as an extended variable in the local cultural context. Practically, the findings provide targeted empirical references for policymakers, healthcare institutions and E-health service developers to optimize elderly-friendly E-health services and narrow the digital health divide.

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