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How Digital Skills Shift Intentions in a Smart Senior Care Context

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Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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ABSTRACT

Aging is an irresistible trend. How to deal with the problems derived from aging has become an extremely important issue among government departments, academia and senior care industry. The objective of this study was to velidate the relationship among perceived digital skills, digital knowledge, attitude and behavioral intentions to use smart senior care platform among the elderly. A total of 403 valid samples were collected through online and onsite questionnaires survey. The results of structural equition model analysis showed that, without considering digital skills, respondents' digital knowledge significantly affected their attitude and behavioral intentions to use the smart senior care platform; and respondents with low digital skills will significantly affect the relationship between their digital knowledge and attitude while considering digital skills. It is suggested that the government and the industry should continue to strengthen digital education and training of digital skills, and the families of the elderly should also pay attention to the digital skills and knowledge of their elders.

Keywords: Digital skills; digital knowledge; smart senior care; aging.

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1. INTRODUCTION

The report of world population survey released by the United Nations in 2019 shows that in 2030 and 2050, the global population over the age of 60 will increase to 41.79% and 67.57%, respectively, highlighting that population aging is an inevitable trend in the future. In China, the trend of aging is even more obvious. The seventh census data in 2020 shows that the old-age dependency ratio (ODR) in China is rapidly increasing from 18.94% in 2010 to 29.53% in 2020. The problem of the old-age dependency ratio brought by aging is gradually testing country's pension policy, pension system, and financial planning [1].

Faced with the problem of aging, studies have pointed out that there are many vulnerable elderly people such as disabled, divorced, orphans and left-behind [2,3]. In response to the problems arising from these aging or vulnerable elderly, the study also pointed out that clarifying the attitude and willingness of the vulnerable elderly towards elderly care services and building a smart elderly care platform is one of the possible solutions to alleviate the high elderly dependency ratio [4].

However, if the digital knowledge and digital skills of the elderly are lacking or insufficient, and hardware such as smart tools and smart elderly care service platforms are available, the problem of aging may still not be solved. Studies have pointed out that individuals' evaluation of their own knowledge and self-evaluation can affect part of the individual's cognitive development based on learning experience [5] and willingness [6]. In other words, the digital knowledge and digital skills of the elderly may affect their attitudes and willingness to use smart tools and smart elderly care service platforms.

Based on the above, the research objective of this paper is to explore the current situation and correlation of digital knowledge, digital skills, attitudes and willingness to use intelligent tools and intelligent elderly care service platforms of the elderly in the context of aging, and to propose suggestions.

2. LITERATURE REVIEW

2.1 The Essence of Aging

Aging is one of the most important trends in the changes in the age structure of the world's population. It represents a relatively high proportion of the elderly population (over 60 years old) in the total population, or a relatively low proportion of the young population. Specifically, when the proportion of the population over 60 years old in a country (or region) reaches or exceeds 10% of the total population, or the population over 65 years old reaches or exceeds 7% of the total population, the country is entering advanced age. society [7]. For example, in 2021, Japan's population over the age of 65 will account for 28.6% of the total population, and Italy, Portugal, Finland, Germany, and France will all be higher than 20%, all of which have entered an aging society.

Secondly, the main reasons for population aging are economic development, the continuous improvement of people's living standards and medical standards, and the rapid increase in average life expectancy [8]. Taking Japan as an example, the country has a developed economy and a leading medical level in the world, which has led to a continuous increase in the average life expectancy. Under this circumstance, for the elderly in Japan, a continuous and stable source of income, the ability to take care of themselves, the ability to seek medical care in a timely manner, the relationship between relatives and friends, and the ability to move are the main problems faced by the elderly.

In addition, the World Population Prospects report (2022) released by the Population Division of the United Nations Department of Economic and Social Affairs predicts that the global population will reach 8 billion in November this year. Meanwhile, India is expected to become the most populous country in the world next year, followed by China [9]. This shows that my country is also facing the severe challenge of the aging problem. How to deal with the aging problem prudently will not only test the party and government institutions, but also test every citizen.

2.2 Digitization, Digital Knowledge and Digital Skills

According to Wikipedia, digital describes a system that generates and processes binary data. Calculators are essentially digital machines that specialize in processing information that has been encoded into binary values. These values, called bits, are combined to form the basis for all calculations and bytes of server system basis [10]. Digitalization is the transition from simulation to digital, the process of using digital data to simplify the way we work, or using digitized information to make ways of working easier and more efficient [11]. Due to the use of digitization for information transmission, it is necessary to build relevant hardware platforms and processes, as well as certain technologies. Regardless of enterprise product information transmission, platform operation, or platform users (fans), all of them must have the knowledge and skills of using digital terminals in order to send and receive information and complete communication and exchange tasks. Therefore, this study defines digital knowledge as "the knowledge that users use digital terminals to edit, send and receive information and complete communication." Digital skills are defined as "the skills of users to use digital terminals to collect, analyze and process information for the purpose of communication or information feedback".

2.3 The Relationship between Digital Knowledge and Attitudes and Behavioral Intentions

Research has pointed out that in the age of aging, continuous acquisition and adaptation of skills are needed to continue working careers [12]. This shows that lifelong learning is necessary. First, you can acquire the knowledge and skills needed for daily life. Second, you can interact with students through learning activities. Third, learning activities are beneficial to the body and brain. Partial use can moderately avoid or slow down Parkinson's disease and Alzheimer's disease and other elderly diseases. Therefore, if the elderly in the ageing age have digital knowledge, they may be more adaptable to the digital age. Secondly, the elderly with digital knowledge may have more opportunities to contact new knowledge and interact with family and friends, so they have a more positive attitude towards the smart health care platform. In this scenario, they may be more willing to use the smart health care platform, pass on the advantages of the smart health care platform, and recommend it to other seniors. Studies also presented that knowledge may affect attitude and the behavioral intentions [1,6]. Accordingly, this study proposes the following hypotheses:

Hypothesis 1: Digital knowledge may affect the behavioral intentions of the elderly to use the smart care platform.
Hypothesis 2: Digital knowledge may influence the attitude of the elderly to use the smart care platform.
Hypothesis 3: The attitude of the elderly towards the smart care platform may affect their behavior intentions.

2.4 The Relationship between Digital Skills and Digital Knowledge, Attitudes, and Behavioral Intentions

Traditionally, knowledge and skills were considered inseparable, and knowledge was correct, verifiable, and believed. On the contrary, skills tend to be operational, referring to the ability to use knowledge and experience to perform certain activities, which are a combination of behavior and cognitive activities, and can be acquired [13]. In addition, some people believe that knowledge is explicit, has standards, and is relatively easy to copy; skills are implicit, diverse and difficult to copy, knowledge is the foundation of skills, and skills are the expression of knowledge [14]. For the elderly, digital knowledge is relatively objective and easy to learn and imitate, while digital skills are relatively subjective and difficult to replicate. For the elderly, a certain proportion of them have a lower level of education and lack or have not received a relatively complete and formal digital education. The knowledge of the use of digital tools may vary greatly, but it is relatively easy to learn. However, my country's rapid digitization has resulted in large differences in the digital skills of the elderly. This study suspects that the relationship between digital knowledge and attitude and behavior intention, as well as the relationship between attitude and behavior intention, may be affected when the elderly have different levels of digital skills. Accordingly, this study proposes the following hypotheses:

Hypothesis 4a: The digital skills of the elderly may affect the relationship between their digital knowledge and behavioral intentions.
Hypothesis 4b: The digital skills of older adults may affect their digital knowledge-attitude relationship.
Hypothesis 4c: The digital skills of older adults may affect the relationship between attitude and behavior intentions.

3. METHODS

3.1 Research Model and Hypotheses

The topic of this study focuses on digital theme in smart senior care context. The objective of our study is to verify the relationships among variables, named digital skills, digital knowledge, attitude, and behavioral intentions. More specifically, clarifying the moderated role of digital skills on digital knowledge-attitude-behavioral intentions model is needed. Quantitative method is adopted while approaching the objectives.

Based on the research framework (Fig. 1), positive relationships among variables from literature review are basically proposed. In the baseline model, that digital knowledge is like to positively influence behavioral intentions in smart senior care context (H1); digital knowledge is like to positively influence attitude in smart senior care context (H2); and attitude is like to positively influence behavioral intentions in smart senior care context (H3) were proposed based on previous studies of Bassellier et al., (2003), Mullins, & Cronan (2021), Bandura (1982), and Li, Chang, and Yen (2022) [15, 16,17,18].

Moreover, one with better digital skills means he/she was familiar with certain skills or experience in dealing some problems while using smart tools. He/she is probably good at dealing digital problems while he/she isn't undertaken well training or education about digital knowledge. Therefore, he/she may not need so much knowledge and it is one of the core tasks of this study. It would have the higher probabilities to destroy the existed relationships in our proposed model. Consequently, we proposed that digital skills are likely to impact digital knowledge-attitude-behavioral intentions relationships (H4a, H4b, and H4c).

3.2 The Population and Setting

Considering to the theme of the study was to verify the causal relationships with in variables, and the data collection requirements of our study such as the needs of large samples of experience on using smart tools, it would be appropriate to employ the questionnaire survey. The population was unknown and set on those seniors who were experienced smart tools during the past six month. They were conducted on site and online for collecting data.

3.3 The Instruments of the Survey

Four variables were listed in the causal model. Digital knowledge (KN) was defined as "the knowledge related to processing, selling and marketing, and financial and accounting issue about digital network" [16, 18]. Three items were adopted to measure KN including "I have enough processing knowledge about digital network", "I have enough selling and marketing knowledge about digital network", and "I have enough financial and accounting knowledge about digital network".

Digital skills (SK) was defined as "the skills or experience of collecting, analyzing, and processing the information about digital network" [16]. It was measured by three items, "I have enough skills about information collection", "I have enough skills about information analysis", and "I have enough skills about Information processing".

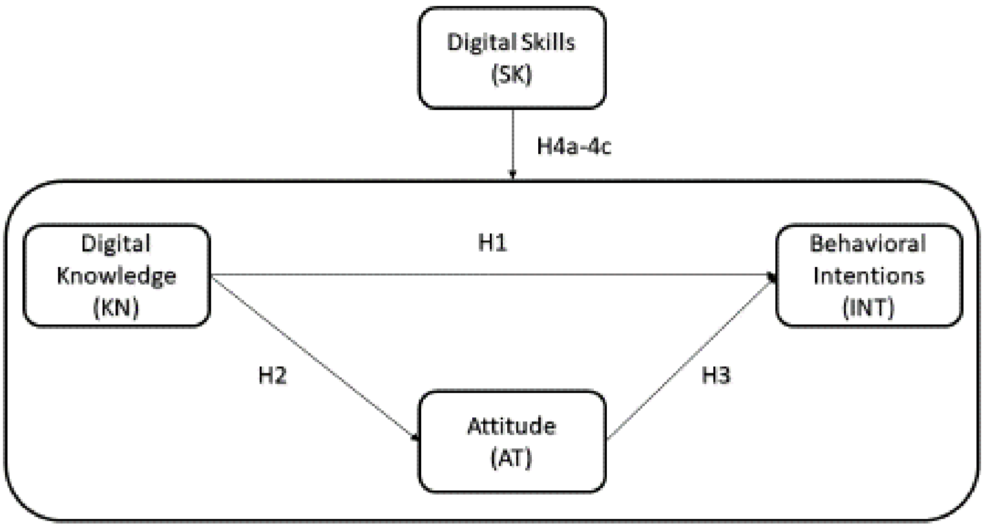

Fig. 1. Research framework

This study defined Attitude (AT) as “the tendency about the usage of smart senior care program” [16,17,18]. Items including “The usage of smart senior care program is a good idea”, “The usage of smart senior care program is a smart idea”, and “I like this idea while using smart tools to deal with daily life needs” were employed for measuring the construct of attitude.

Considering to behavioral intentions (INT), it was viewed as “the extent to reuse, positive words of mouth, and recommended the smart tools” [17,18]. Those items, “Whenever I need, I’ll process network through smart tools”, “I’ll tell the positive benefits of smart tools to other senior”, and “I’ll recommend the benefits of smart tools to other senior” were used to measure INT.

3.4 Questionnaire Survey

The questionnaire was established on Questionnaire Start System. The link was send to relevant groups in May, 2022. Of 403 questionnaires obtained (Table 1), about 36.7% were male and 63.3%were from female respondents. At about 37.2% of respondents were 50-59 years of age, 43.4% of respondents were 61-65 years of age, 16.6% of respondents were 66-70 years of age, 2.7% of respondents were above 71 years of age. Approximately 16.6% of respondents were graduated from primary school or below; 32.5% of respondents come from secondary school; 27.5% were undergraduate; 20.8% got a bachelor degree; and only 2.5% of respondents were master.

With regard to the occupation, 3.5% of respondents work at government related sectors, 21.8% of respondents belong to industrial sector, 23.6% of respondents were commerce/service industry, 19.9% of respondents were farmers, 21.6% of respondents were educational industry, and 9.7% of respondents were retired/else. Approximately 27.5% of respondent’s monthly income was below 3000 RMB, 48.1% of respondent’s monthly income was 3001-6000 RMB, and 20.6% of respondent’s monthly income was 6001-8000 RMB while 3.7% of respondent’s monthly income exceeds 8000 RMB. The Correlation matrix of measurement was listed in Appendix A.

4. RESULTS

The two-stage analytical procedures which was suggested by Anderson and Gerbing (1988) [19] was adopted to validate the measurement model and structural model. Validity and reliability were assessed by measurement model and the hypothesized relationships within proposed model were estimated by structural model using the maximum- likelihood method. Table 2 reports the descriptive statistics. As expected, for all the constructs, Table 2 tests of normality which including skewness and kurtosis were conducted [20]. As expected, all of the absolute values of skewness were less than 3 andkurtosis did not exceed 10. These indicated no departure from normality. Thus, as normality was confirmed for all the constructs. Furthermore, the psychometric properties of the constructs were assessed by calculating the Cronbach's alpha reliability coefficient [21]. This allows us to address the CFA and SEM.

Table 1. Demographic characteristics (n=403)

Item	Freq.	%	Item	Freq.	%
Gender			Occupation (before retired)		
Male	148	36.7	Government department	14	3.5
Female	255	63.3	Manufacturing industry	88	21.8
Age (years old)			Commerce/service industry	95	23.6
50-60	150	37.2	Agricultural industry	80	19.9
61-65	175	43.4	Educational industry	87	21.6
66-70	67	16.6	Else	39	9.7
71 or above	11	2.7	Monthly income retired (RMB)		
Educational level			<3000	111	27.5
Primary	67	16.6	3001-6000	194	48.1
Secondary	131	32.5	6001-8000	83	20.6
Undergraduate	111	27.5	>8000	15	3.7
Bachelor	84	20.8			
Master or above	10	2.5			

Table 2. Descriptive statistics (n=403)

Question items	Mean	SD	Sk.	Ku.	SFL
Digital Knowledge (VE=66.19%, Cronbach's Alpha= 0.744)					
KN1: I have enough processing knowledge about digital network.	2.42	1.007	.383	-.445	.797
KN2: I have enough selling and marketing knowledge about digital network.	2.58	1.144	.302	-.675	.837
KN3: I have enough financial and accounting knowledge about digital network.	2.71	1.120	.238	-.581	.805
Digital Skills (VE=64.25%, Cronbach's Alpha= 0.721)					
SK1: I have enough skills about information collection.	2.49	1.077	.389	-.478	.813
SK2: I have enough skills about information analysis.	2.52	1.096	.230	-.823	.781
SK3: I have enough skills about Information processing.	2.44	1.055	.512	-.270	.810
Attitude (VE=63.72%, Cronbach's Alpha= 0.715)					
AT1: The usage of smart senior care program is a good idea.	2.09	.982	.679	-.106	.785
AT2: The usage of smart senior care program is a smart idea.	2.11	1.008	.678	-.110	.815
AT3: I like this idea.	2.02	.941	.645	-.231	.794
Behavioral intentions (VE=59.37%, Cronbach's Alpha= 0.656)					
INT1: Whenever I need, I'll process network through smart phone.	2.19	.856	.453	-.099	.770
INT2: I'll tell the positive benefits of smart phone to other senior.	2.19	.953	.574	-.086	.730
INT3: I'll recommend the benefits of smart phone to other senior.	2.23	.940	.553	-.051	.809

SD: Standard deviation; Sk: Skewness; Ku: Kurtosis; SFL: Standard factor loading; VE: Variance extracted

4.1 Assessment of the Measurement Model

As shown in Table 3, the standardized factor loadings (SFL) were above the recommended value of 0.50 and all indicators used in this study significantly loaded on their corresponding factors [23]. The convergent validity of the constructs in the measurement model were met. Furthermore, AVE values of the constructs were also above or close to the level of 0.50, which proves sufficient convergent validity of the measurement model [22]. According to Table 4, the squared root of AVEs presented on the diagonal were above the correlations between the variables. This implies that the discriminant validity of the variables was evidenced [22].

4.2 Assessment of the Structural Model

Following the measurement model, the proposed model with three constructs estimated with structural equations modeling to test the research hypotheses. Three steps were employed to estimate the parameters as well as the hypothesis testing. As shown in Table 5, the relationships of baseline model were estimated in Model 1, Model 2, and Model 3. The overall fit indexes for the Model 3 was adequate (χ^2 =30.62, DF=24, p=.165, χ^2 /DF = 1.276, GFI=0.984, AGFI= 0.970, CFI= 0.993, RMSEA= 0.026) and the research hypotheses of baseline model were confirmed. As expected, the KN-INT relationship, KN-AT relationship, and AT-INT relationship were significantly and positively confirmed, which supported H1, H2, and H3. The R^2_{AT} was 0.331, and R^2_{INT} was 0.706.

4.3 Assessment of Differences across Digital Skills (SK)

To test the proposed moderating effect of digital skills (SK), our study conducted the invariance test for measurement and structural models. A total of 232 participants were low SK, 171 respondents were high SK.

Table 3. Results of CFA (n=403)

Constructs	Indicator	λ	t-values	SMC	CR	AVE
Digital Knowledge (KN)	KN1	.691	14.781	.478	0.745	0.493
	KN2	.709	15.262	.502		
	KN3	.707	15.202	.499		
Digital Skills (SK)	SK1	.685	14.679	.470	0.721	0.462
	SK2	.688	14.754	.474		
	SK3	.667	14.197	.445		
Attitude (AT)	AT1	.672	13.298	.452	0.716	0.456
	AT2	.691	13.727	.477		
	AT3	.663	13.077	.439		
Behavioral intentions (INT)	INT1	.634	12.389	.402	0.661	0.395
	INT2	.572	11.002	.327		
	INT3	.676	13.313	.457		

Notes: λ: Standardized factor loadings; SMC: Square multiple correlation; CR: Composite reliability; AVE: Average variance extracted; All t-statistics are significant at 0.01 level; (χ^2 =65.83, DF=48, p=.045, χ^2 / DF = 1.371, GFI= 0.974, AGFI= 0.958, CFI= 0.989, RMSEA= 0.030)

Table 4. Discriminant validity of constructs

Items	M	SD	1	2	3	4
1.KN	7.71	2.66	0.702			
2.SK	7.45	2.59	0.741**	0.680		
3.AT	6.21	2.34	0.417**	0.507**	0.675	
4.INT	6.61	2.12	0.532**	0.538**	0.506**	0.629

**p<0.05, **p<0.01; KN: Digital Knowledge; SK: Digital Skills; AT: Attitudes; INT: Behavioral intentions; Diagonal elements are the square root of average variance extracted. Off-diagonal elements are the coefficients of correlation between factors*

Table 5. Hypotheses testing for baseline model

Paths	M1		M2		M3	
	Estimate	**t**	**Estimate**	**t**	**Estimate**	**t**
H1: KN-INT	0.753***	6.976	0.831***	6.196	0.491***	4.805
H2: KN-AT			0.669***	7.917	0.575***	7.207
H3: AT-INT					0.456***	4.408
R^2_{AT}			0.447		0.331	
R^2_{INT}	0.567		0.690		0.706	
Model fitness						
χ^2	12.61		55.16		30.62	
DF	8		25		24	
p	0.126		0.000		0.165	
χ^2 / DF	1.577		2.366		1.276	
GFI	0.990		0.967		0.984	
AGFI	0.974		0.940		0.970	
CFI	0.992		0.964		0.993	
RMSEA	0.038		0.058		0.026	

**P<0.05, **P<0.01, ***p<0.001*

First, a non-restrict model was generated. The model included a good fit to the data (χ^2 =30.6, DF=24, p=.165, χ^2 / DF = 1.276, GFI= 0.987, AGFI= 0.970, CFI= 0.993, RMSEA= 0.026). The restricted model of structural weight was then compared to the full-metric invariance model whose fit to the data were adequate (χ^2 =153, DF=69, p=.000, χ^2 / DF = 2.221, GFI= 0.923, AGFI= 0.900, CFI= 0.822, RMSEA= 0.055). Results of the chi-square difference test revealed that there was no significant difference between these two models ($\triangle\chi^2$ (49) = 123, p < .01). This finding supported the full-metric invariance. This full-metric invariance model remained for further analysis. Table 6 includes the details about the measurement invariance assessment. The baseline model was generated by adding proposed paths on the full-metric invariance model. Results showed that the baseline model acceptably fit to the data (χ^2 =46.78, DF=48, p=.523, χ^2 / DF = 0.975, GFI= 0.976, AGFI= 0.954, CFI= 1, RMSEA= 0.000).

Next, this model was compared to nested models in which a particular linkage across SK_H and SK_L groups is constrained to be equivalent. Findings from the chi-square difference test revealed that there were significant differences on the KN-AT link ($\triangle X^2/\triangle DF$=10.39, p< .01). This finding supported Hypotheses 4b. That is, the magnitude of the impact of KN on AT, respectively, were significantly different across SK_H and SK_L groups.

Table 6. Hypotheses testing for moderated model

Paths	M4 (SK_L, n=232)	M5 (SK_H, n=171)	M3 (SK_{All}, n=403)	Baseline model	Nested model
	Estimate(t)	**Estimate(t)**	**Estimate(t)**	**χ^2 (DF)**	**χ^2 (DF)**
H1:KN-INT	0.463(.83)	0.345***(3.04)	0.491***(4.81)	46.78(48)	48.21(49)
H2:KN-AT	0.666**(2.90)	0.119(1.12)	0.575***(7.21)	46.78(48)	57.18(49)
H3:AT-INT	0586(.762)	0.461***(3.91)	0.456***(4.41)	46.78(48)	47.86(49)
R^2_{AT}	0.443	0.014	0.331		
R^2_{INT}	0.920	0.369	0.706		
Chi-squire testing					
H4a	$\triangle X^2/\triangle DF$=1.43				
H4b	$\triangle X^2/\triangle DF$=10.39, Supported				
H4c	$\triangle X^2/\triangle DF$=1.08				

**P<0.05, **P<0.01, ***p<0.001*

5. DISCUSSION

The proposed conceptual framework of this study comprised digital knowledge, attitude, behavioral intentions, and the moderator, digital skills. There is relatively little scholarly research on digital skills and digital knowledge issue especially focusing on smart senior care context. The proposed model of this study revealed an acceptable level of explanatory ability in predicting seniors' behavioral intentions in smart senior care context. The hypothesized links among research variables in baseline model were found to be generally supported. The first contribution of digital knowledge to seniors' behavioral intentions generation was notable. The predicting power of behavioral intentions was significantly fostered from 0.567 to 0.706 since attitudes added. Findings supported the hypotheses suggested by previous studies [16,17,18]. And we applied their findings to smart senior care context.

In addition, the theoretical framework was deepened by demonstrating the moderating impact of digital skills. The specific role of digital skills on particular paths of interest was clearly uncovered. In sum, the proposed model containing nine research constructs and four hypotheses was well supported; and our research objectives were wholly achieved.

6. CONCLUSION

Regardless of digital skills, the respondents' digital knowledge had a significant positive impact on their behavioral intentions to use digital tools, and also influenced their behavioral intentions to use digital tools through their attitude.

In terms of the relationship between variables, the level of digital skills significantly affects the relationship between digital knowledge-attitude. In other words, for the interviewees with low digital skills, the influence of digital knowledge on attitude will be strengthened, and the coefficient will be increased from 0.575 to 0.666. The explanatory power of behavioral intentions will also be enlarged from 0.706 to 0.920. Digital skills can strengthen the relationship between digital knowledge and attitude. For those with high digital skills, the influence of digital knowledge on attitude will be weakened, and the coefficient will decline from 0.575 to 0.119. The explanatory power of behavioral intentions will also decrease from 0.706 to 0.369. Digital skills can weaken the relationship between digital knowledge and attitude.

In other words, when older people have low digital skills, they may need more digital knowledge to improve their attitudes and behavioral intentions. On the contrary, when the elderly have high digital skills, they can rely on this digital skills to engage in digital health care activities, the importance of digital knowledge is therefore diluted, digital knowledge to health care attitude is weakened, from significant to insignificant, and the elderly with a health care attitude can also generate behavioral intention.

It is suggested that the government and the industry should continue to strengthen digital education and training of digital skills, and the families of the elderly should also pay attention to the digital skills and knowledge of their elders.

Lastly, this study has validated the relationships of variables in the proposed model. There should be one more factors influencing behavioral intentions of elderly. Future studies could further verify its impacts on the causal relationships. Moreover, that the survey respondents were elderly was troubled to the study. Future studies could collect data through the better ways. Thus the quality of the data would be better.

CONSENT

As per international standard or university standard, respondents' written consent has been collected and preserved by the author(s).

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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Appendix A. Correlation matrix

Items	M	SD	Digital knowledge			Digital skills			Attutide			Behavioral intentions		
			KN1	KN2	KN3	SK1	SK2	SK3	AT1	AT2	AT3	INT1	INT2	INT3
KN1	2.42	1.007	1											
KN2	2.58	1.144	.508**	1										
KN2	2.71	1.120	.447**	.522**	1									
SK1	2.49	1.077	.461**	.493**	.468**	1								
SK2	2.52	1.096	.494**	.497**	.493**	.450**	1							
SK3	2.44	1.055	.472**	.459**	.509**	.498**	.443**	1						
AT1	2.09	.982	.298**	.234**	.317**	.388**	.290**	.345**	1					
AT2	2.11	1.008	.289**	.229**	.254**	.351**	.346**	.250**	.463**	1				
AT3	2.02	.941	.353**	.248**	.234**	.317**	.337**	.294**	.426**	.478**	1			
INT1	2.19	.856	.342**	.276**	.314**	.340**	.369**	.291**	.320**	.336**	.326**	1		
INT2	2.19	.953	.375**	.300**	.327**	.365**	.307**	.341**	.246**	.282**	.248**	.328**	1	
INT3	2.23	.940	.394**	.342**	.341**	.309**	.377**	.291**	.377**	.318**	.355**	.448**	.393**	1

$*p<0.05, **p<0.01$

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