Dynamics of Health Technology Diffusion in Integrated Care System (DHTDICS): A Development and Validation Study

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Research article

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Abstract

Background Limited diffusion and utilization of health technology has greatly halted the improvement of resource integration and healthcare outcomes. However, the dynamic mechanism of health technology diffusion in the context of integrated care system (ICS) remained largely unknown. The purpose of this study was to develop and validate the scale on Dynamics of Health Technology Diffusion in Integrated Care System (DHTDICS) for providing instruments to investigate the health technology diffusion in ICS.

Methods The scale was initially designed on the basis of the proposed model developed from previous research. And it was validated in a cross-sectional questionnaire survey. Exploratory factor analysis was used to assess domains in the questionnaire, and analyzed factorials, internal consistency and validity of the questionnaire.

Results Reliability analysis revealed excellent internal consistency, as the value of Cronbach's alpha all greater than 0.80 for four of the domains in this study. An acceptable validity was confirmed through tests of construct validity, convergent validity and discriminant validity. With respect to the potential domains and dimensions that DHTDICS contributes, the results highlight the existence of 4 domains: personal beliefs, technical drivers, organizational readiness and external environment.

Conclusions The findings of this study will be capable to serve as a valid instrument to measure health technology diffusion, and be also helpful in developing future intervention strategies to promote the health technology diffusion in ICS.

Background

At present, growth of the integrated care system (ICS) is accelerating worldwide [1-4]. In China, acting as an important carrier of ICS, many regional medical consortiums (RMCs) provides a good opportunity to promote the communication and collaboration between different levels of health institutions [5,6]. Meanwhile, it also puts forward higher requirements on the integration ability of health resources and the service quality of primary health institutions [7,8]. Although some achievements have been made in the integration of health resources in the RMC, problem of under-utilization of health technology still exists in practice, and the value of many health technologies have not been given full play [9]. Taking des-ganmma-carboxy prothrombin (DCP) for example, DCP is a tumor marker of primary hepatocellular carcinoma, and the security, effectiveness and economy of DCP test in early detection of primary hepatocellular carcinoma have been reported in many clinical practices and studies [10-13]. However, even in the context of RMC, the utilization of DCP is mainly limited to the large hospitals, which constrained the full play of its diagnostic and therapeutic functions in a wider range. Since the dynamic mechanism of health technology diffusion in ICS remained largely unknown, to provide theoretical guidance and supporting tool for promoting effective integration of health technology, this study aims to take DCP test as an example to develop a scale for measuring the dynamics of health technology diffusion in the context of integrated care system.

Theories in technology diffusion

A lot of researches on technology diffusion have carried out in the disciplines of sociology, behavior, psychology and so on. And many classical theories have been proposed and guided the practices, such as the Theory of Planned Behavior (TPB), Technology Acceptance Model (TAM), Innovation Diffusion Theory (IDT) and Technology-Organization-Environment framework (TOE). TPB suggests individual's behavior is ultimately influenced by behavioral intention, which is a function of attitude toward behavior, subjective norms and perception of the ease with the behavior can be performed [14]. TAM implies perceived usefulness and perceived ease of use as two crucial factors, which focuses on the impact of technology natures [15]. IDT demonstrates that properties of technology and interpersonal communication can affect technology use [16]. TOE infers that the effect of technology, organization and external environment should be considered [17].

Domains and Dimensions

Since there were insufficient explanations in terms of health technology diffusion from different perspectives and facets, we integrate these theories to provide some clues on the potential factors affecting health technology diffusion, and explore the dynamics of health technology diffusion in ICS from four domains, namely domain of personal beliefs, domain of technical drivers, domain of organizational readiness and domain of external environment (Figure 1).

{insert Figure 1 here}

In this study, personal beliefs refer to the physicians' perceptions on DCP test and its use. It is one of the domains strongly associated with health technology diffusion, which mainly depend upon two major factors: attitudes and subjective norms. Attitude has been perceived as one of the most powerful predictor in technology adoption and use, while subjective norms are kind of perceived criterions and pressures from important individuals' judgements. With respect to DCP test adoption and use, physicians' positive or negative attitude reflects different predispositions [18,19]. And for the physicians working in a clear hierarchy system such as the RMC, opinions on DCP test from leaders, supervisors and colleagues are forces to be reckoned with [20-22].

The technical drivers, which involves the nature of technology including ease of use and price rationality, acts as an indispensable domain concerned with diffusion dynamics of health technology [23]. Innate properties of health technology can influence behavioral tendency [24]. Taking DCP test for instance, ease of use is a degree to which the physicians expect the DCP test can be performed with ease, while price rationality is an underlying important source of motivation [25,26]. These are of vital importance for the primary health centers and county hospitals within the RMC. Because of limited funding support and human resource, these organizations tend to adopt technologies easier to perform with price rationality.

Moreover, studies have mentioned the importance of domain of organizational readiness, which reflects the overall preparedness for health technology and preference tendency of the entire staff, it consists of three factors: organizational culture, technology absorptive willingness and technology sharing willingness. Organizational culture is the ensemble of values, norms, beliefs, language patterns and operating behaviors shared by individuals or groups within an organization, such as RMC or a hospital within it [27,28]. Technology absorptive willingness show the willingness and readiness situations of introducing a new health technology into the organization [29], while technology sharing willingness is a degree of sharing knowledge with the other organizations [30,31].

Domain of external environment is generally considered as an important factor affecting the health technology diffusion, which usually focuses on industry competition pressure [32,33]. In the context of RMC with well integration of health service delivery, in most cases, competition still occurs among hospitals of the same type and grade. Even in some conditions for soliciting more patients, there are some intense competitions among different levels of medical institutions within RMC. Both the trend in the market and the tendency of business partners are main concerns of the hospital managers while making decision on whether adopting certain technology [34].

Methods

Sample and Procedure

A cross-sectional study was conducted from October to December 2018 in China. Fujian province and Jiangxi province were randomly selected from the provinces with high and low incidence of hepatocellular carcinoma, respectively. In each province, two RMCs were randomly selected and its tertiary and secondary hospitals were included in the survey. The participants comprised a sample of 246 physicians working in the department on the diagnosis and treatment of hepatocellular carcinoma at the included hospitals. They participated in the study voluntarily. Each round for filling out the questionnaire was accompanied by trained facilitators. All participants have given informed consent and all responses were anonymous in this study.

Measure

According to the proposed model in Figure 1., the scale of Dynamics of Health Technology Diffusion in Integrated Care System (DHTDICS) was initially structured with four domains, composed of 8 dimensions: personal beliefs, including dimensions of “attitudes” (ATT) and “subjective norms” (SN); technical drivers, including dimensions of “ease of use” (EOU) and “price rationality” (PR); organizational readiness, including dimensions of “organization culture” (OC), “technology absorptive willingness” (TAW) and “technology sharing willingness” (TSW). All 25 items were measured using a five-point Likert scale ranging from “strongly disagree” (1) through “neutral” (3) to “strongly agree” (5). Additionally, personal socio-demographic characteristics (such as gender, age, education, years of practice) were also collected.

Data Analysis

Internal consistency was tested using Cronbach’s alpha, composite reliability (CR), and the average variance extracted (AVE). The acceptance values of Cronbach’s alpha, CR, AVE are 0.7, 0.5, 0.7, respectively [35-37]. Questionnaire optimization was in virtue of corrected item-total correlations by Cronbach’s alpha, at least three or four items were used to interpret per factor. The validity was examined by construct validity, convergent validity and discriminant validity.

Exploratory factor analysis (EFA) was used to explore possible factors and factor structure in the pool of items, by principal components analysis (PCA) (the method of factor extraction). Kaiser-Meyer-Olkin (KMO) values, Bartlett’s test of sphericity, factor loadings, eigenvalues, the correlation matrices and the squared multiple correlation were used to verify the factorability. The recommended threshold of KMO values and factor loadings are 0.7 and 0.5, respectively [38,39]. Factors with eigenvalues greater than 1 in the factor extraction were determined.

Data analyses were performed using IBM SPSS software (SPSS, Inc., Chicago, IL, USA). Statistical significance was set at $P<0.05$.

Results

Sample Description

This study included 246 physicians in total. The corresponding sample-to-item ratios of 9.84 was greater than the threshold of 5 [40], it can be considered that sample sizes collected were acceptable. Table 1 demonstrates the demographic characteristics of the 246 participants. Data about personal beliefs, technical drivers, organizational readiness, external environment are shown in Table 2.

{insert **Table 1, Table 2** here}

A PCA of all the 25 items showed KMO values of 0.909 and the Bartlett’s test of sphericity was strongly significant (<0.001), indicating the great suitability of PCA for validity estimate. Four factors appeared with an eigenvalues greater than 1 and cumulatively explained 77.29% of the total variance. To further defined factors included clearly, varimax rotation method was then used. The results (Table 3) showed all items in each dimension were loaded to four different factors, which fits well with the proposed framework and indicates acceptable construct validity. Accordingly, we named factor 1 as “Organizational readiness”, factor 2 as “Personal beliefs”, factor 3 as “technical drivers”, factor 4 as “external environment”, respectively. Besides, factor scores of the four factors were automatically generated into the last columns of the operation interface.

{insert **Table 3** here}

To keep improving research model, the items need to be further optimized on the basis of the corrected item-total correlation and Cronbach's alpha if deleted [41]. Items would be deleted if its results satisfy both of two conditions: i) the corrected item-total correlation less than 0.6; ii) Cronbach's alpha of factor would be improved if this item deleted. As demonstrated in Table 4, all items have the corrected item-total correlation greater than 0.6, and Cronbach's alpha of the factor would not be improved if the item was deleted. Therefore, no item needs to be eliminated.

{insert **Table 4** here}

Next, we calculated Cronbach’s alpha, CR, and AVE for each factor to identify the reliability and validity. The Cronbach’s alpha of all factors and the whole questionnaire were much higher than the recommended threshold of 0.7 (see Table 5), suggesting internal consistency is fairly well. All factor loadings of items were above the acceptability value of 0.5. Furthermore, AVE and CR values of all factors were above the recommended value of 0.5 and 0.7, which indicates a good convergent validity.

{insert **Table 5** here}

Then, we followed Fornel and Larcker’s (1981) suggestion to calculate the square root of AVE [39]. As shown in Table 6, the square root of AVE (reported in the diagonal of correlation matrix) of each factor was higher than its correlation coefficients with other factors, indicating its strong discriminant validity.

{insert **Table 6** here}

Meanwhile, we show the correlations between the items and factor scores of each factor. The results are shown in Table 7. Each of the factors was separated from each other on account of having low correlation with each other. Additionally, items of the same dimension converged on the same factor, and discriminate well with other factors.

{insert **Table 7** here}

Discussion

Limited diffusion and utilization of health technology has greatly halted the improvement of resource integration and healthcare outcomes [42,43]. This issue has become even more severe and prominent especially under the background of continuous ICS growth worldwide. To bridge the research gap that few is known on the dynamic mechanism of health technology diffusion in ICS, this study took the DCP test as an example and developed an instrument to measure and evaluate the dynamics of health technology diffusion in integrated care system (DHTDICS). It will be provided as a scientific tool for investigating the mechanism and further promote the health technology diffusion in ICS,

By conducting EFA, analyzing the internal consistency, validity and dimensionality of the DHTDICS, the reliability and validity of this instrument has been confirmed. Results of reliability analysis revealed excellent internal consistency, as the value of Cronbach's alpha all greater than 0.80 for four of the domains in this study. Regarding to the validity test, EFA results showed all items in each dimension were loaded to four different factors, which fits well with the proposed framework and indicates good construct validity. AVE and CR values of all factors were above the recommended value of 0.5 and 0.7, which indicates an acceptable convergent validity. Additionally, it demonstrated items of the same dimension converged on the same factor, and discriminate well with other factors.

With respect to the potential domains and dimensions that DHTDICS contributes, the EFA results highlight the definite existence of 4 domains and 8 dimensions: domain of personal beliefs (the effect of individuals' perceptions and impressions on subjective and interpersonal predisposition, including dimensions of attitude and subjective norm), domain of technical drivers (the effect of characteristics of health technology on hardware predisposition, including dimensions of ease of use and price rationality), domain of organizational readiness (the effect of context preparedness in spiritual level, including dimensions of organizational culture, technology absorptive willingness and technology sharing willingness) and domain of external environment (the effect of forces that can exert influence on physicians from the outside of the hospitals, including dimension of industry competition pressure), which were in line with assumption of scale design and also consistent with the findings of previous research on health technology utilization [44-46]. This result reminds us that successful technology diffusion doesn't depend solely on the technology itself, on individual practitioners, on the promotion of organizations, or on the external environment, but is the outcome of the joint efforts or effects of all the aspects mentioned above. It emphasizes the importance of taking concrete measures from a multi-dimensional perspective to integrate the efforts of all involved parties while promoting health technology diffusion in the context of ICS.

Among multiple domains having impact on the health technology diffusion, domains of personal beliefs and organizational readiness were illustrated as two of the most powerful domains in the DHTDICS in this study, which implied that more attention should be paid to these two aspects. For instance, Domain of organizational readiness, namely Factor 1 in this study, consisting of organizational culture, willingness of technology absorptive and technology sharing, highlighted the importance of developing an organizational atmosphere that advocates technology innovation and promotes inter-organizational technology exchange and cooperation. Similarly, Domain of personal beliefs, namely Factor 2 in this research, revealed that positive attitudes and strong subjective norms would facilitate health technology diffusion. Thus, to promote the diffusion of some appropriate health technology in RMC, it is recommended to uptake some continuing education and training to raise the awareness of certain health technology and the importance of expanding its use. Besides, the positive role of subjective norm also highlighted the impact of peer and organization as mentioned above. Additionally, as confirmed by previous researches, organizational norms and values controls the way individuals interact with each other within or outside the boundaries of the organization, which also directly impact the health technology diffusion [19,25]. Apart from these factors, domains of technical drivers and external environment are also significant dynamics components that can not be ignored in health technology diffusion in RMC.

Known to us, there is a dearth of empirical study related to the dynamic mechanism of technology diffusion in the context of ICS. To bridge the research gap, this study develops and validates an instrument for measuring DHTDICS, which will be helpful for identifying the dynamics of health technology diffusion in ICS. The results of this study will not only guide the real practice of promoting the utilization of DCP test for hepatocellular carcinoma screening, but also provide clues or inspirations for diffusion of other health technologies in RMC, given that the important dynamics of health technology diffusion determined in this study had been generalized to the setting of ICS. However, there are also some limitations in this study. Firstly, owing to the social desirability bias [47], although we emphasized that all responses were confidential and solely for academic research when filling out the questionnaire, the physicians enrolled may not tend to voice negative assessment on actual performance of themselves and the hospitals, which probably lead to overestimation of their attitude and utilization of DCP test. Secondly, this study is also limited by its cross-sectional design, and future research may collect cross-sectional data at different time point to form panel data, which will be more robust in investigating the determinants of DHTDICS. Thirdly, owing to time and funding constraints, the DHTDICS has only been validated in tertiary and secondary hospitals within RMC in two provinces of Fujian and Jiangxi in China. It should be cautious while citing these study results to guide the activities on health technology diffusion within primary health institutions in remote areas.

Conclusions

This study contributed to the knowledge of health technology diffusion by developing and validating the scale of Dynamics of Health Technology Diffusion in Integrated Care System (DHTDICS), which comprehensively comprised multiple aspects as personal beliefs, technical drivers, organizational readiness and external environment. The scale will be provided as a robust tool for measuring and evaluating the dynamics of health technology diffusion in RMC, which will be also helpful in developing future intervention strategies to promote the health technology diffusion in ICS. In the future research, more efforts are planned to carry out surveys with larger sample size at different time points, and use confirmatory factor analysis and model construction for determining the comprehensive dynamic mechanism.

Abbreviations

ICS: Integrated care system

RMC: Regional medical consortiums

DCP: Des-ganmma-carboxy prothrombin

DHTDICS: Dynamics of Health Technology Diffusion in Integrated Care System

Declarations

Ethics approval and consent to participate

Ethics approval was obtained from the medical ethics committee, Fujian Medical University, China. Written informed consent was obtained from all study participants.

Consent to publish

Not applicable.

Availability of data and materials

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests.

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Authors' Contributions

LW designed and conducted the project, contributed to grasp the subject and revised the manuscript. DQ carried out the data analysis and drafted the manuscript. LW and DQ developed the questionnaire. All authors read and approved the manuscript before submission.

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Tables

Table 1. Demographic characteristics of the 246 participants.

Variable	Frequency	Percentage (%)
Gender		
Male	163	66.26
Female	83	33.74
Age		
<35 years old	107	43.50
35~44 years old	99	40.24
≥45 years old	40	16.26
Education		
Junior college or below	23	9.35
Bachelor	140	56.91
Master	76	30.89
Doctor	7	2.85
Professional Title		
Junior	87	35.37
Intermediate	91	36.99
Senior	68	27.64
Administration Position		
Yes	51	20.73
No	195	79.27
Years in Practice		
<5 years	62	25.20
5~10 years	74	30.08
11~15 years	72	29.27
16~20 years	33	13.41
>20 years	5	2.04

Table 2. Items of perceptions on DCP and its diffusion (n/%).

Personal beliefs	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
ATT1. I think it's a right thing to use DCP for early diagnosis of hepatocellular carcinoma	0/0	6/2.44	51/20.73	83/33.74	106/43.09
ATT2. I think it's a wise choice to use DCP for early diagnosis of hepatocellular carcinoma	1/0.41	9/3.66	48/19.51	83/33.74	105/42.68
ATT3. I think it's good for all to use DCP for early diagnosis of hepatocellular carcinoma	0/0	7/2.86	47/19.11	81/32.93	111/45.12
SN1. People who are important to me tend to use DCP for early diagnosis of hepatocellular carcinoma	4/1.63	12/4.88	52/21.14	74/30.08	104/42.27
SN2. People who are important to me have a positive attitude on using DCP for early diagnosis of hepatocellular carcinoma.	5/2.03	12/4.88	53/21.54	70/28.46	106/43.09
SN3. People who are important to me think it's a right thing to use DCP for early diagnosis of hepatocellular carcinoma.	1/0.41	10/4.07	57/23.17	71/28.85	107/43.50
Technical drivers	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
EOU1. We can easily obtain the materials and instruments needed for DCP test	5/2.03	11/4.47	75/30.49	68/27.64	87/35.37
EOU2. We can get the result of DCP test in a short time after detection	0/0	7/2.85	72/29.27	77/31.30	90/36.58
EOU3. We can be provided with assistance in clinical diagnosis by the result of DCP test	0/0	6/2.44	53/21.54	82/33.33	105/42.69
PR1. Compared with the same type of serological tests, the price of DCP is relatively cheaper	7/2.85	12/4.88	108/43.90	57/23.17	62/25.20
PR2. DCP test has a high cost performance	3/1.22	9/3.66	92/37.40	71/28.86	71/28.86
PR3. The price of DCP is affordable for most patients	4/1.63	5/2.03	79/32.11	70/28.46	88/35.77
Organizational readiness	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
OC1. The hospital advocates the technical innovation to improve the clinical outcomes for patients.	15/6.10	12/4.88	51/20.73	79/32.11	89/36.18
OC2. The hospital advocates continuous learning and absorption of new technologies	10/4.07	6/2.44	44/17.88	79/32.11	107/43.50
OC3. The hospital advocates the exchange and sharing of clinical experience	10/4.07	6/2.44	48/19.51	76/30.89	106/43.09
TAW1. When DCP test appeared, the hospital allocate relevant staff to collect information	15/6.10	14/5.69	70/28.46	71/28.86	76/30.89
TAW2. When DCP test introduced, the hospital provide training for the staff	24/9.76	9/3.66	68/27.64	75/30.48	70/28.46
TAW3. When DCP test adopted for clinical practice, the hospital promoted its use more widely.	22/8.94	11/4.47	73/29.68	72/29.27	68/27.64
TSW1. The hospital is willing to send the information of DCP test with other institutions	10/4.07	9/3.66	51/20.73	80/32.52	96/39.02
TSW2. The hospital is willing to discuss the problems of DCP use with other institutions	9/3.66	8/3.25	52/21.14	82/33.33	95/38.62
TSW3. The hospital is willing to share the experience of DCP use with other institutions	10/4.07	7/2.85	46/18.70	87/35.37	96/39.01
External environment	Strongly	Disagree	Neutral	Agree	Strongly

	Disagree				Agree
ICP1. DCP has been widely used for early diagnosis of hepatocellular carcinoma in the medical industry	10/4.07	6/2.44	66/26.83	78/31.71	86/34.95
ICP2. Many surrounding hospitals are using DCP for early diagnosis of hepatocellular carcinoma	14/5.69	20/8.13	88/35.77	61/24.80	63/25.61
ICP3. Our business partners recommend DCP for early diagnosis of hepatocellular carcinoma	7/2.85	9/3.66	84/34.15	74/30.07	72/29.27
ICP4. The application of DCP in the early diagnosis of hepatocellular carcinoma has become routinized.	7/2.85	10/4.07	86/34.95	68/27.64	75/30.49

Table3. Exploratory factor analysis.

Items	Factors and Loadings			
	Factor 1	Factor 2	Factor 3	Factor 4
ATT1		0.813		
ATT2		0.869		
ATT3		0.856		
SN1		0.856		
SN2		0.832		
SN3		0.848		
EOU1			0.645	
EOU2			0.667	
EOU3			0.596	
PR1			0.814	
PR2			0.778	
PR3			0.800	
OC1	0.811			
OC2	0.882			
OC3	0.885			
TAW1	0.765			
TAW2	0.745			
TAW3	0.726			
TSW1	0.903			
TSW2	0.897			
TSW3	0.894			
ICP1				0.764
ICP2				0.736
ICP3				0.732
ICP4				0.748

Table 4. Items' corrected item-total correlation and Cronbach's alpha if deleted.

Item	Cronbach's Alpha	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
ATT1	0.955	0.815	0.801	0.951
ATT2		0.855	0.801	0.946
ATT3		0.883	0.826	0.944
SN1		0.888	0.826	0.943
SN2		0.850	0.843	0.948
SN3		0.874	0.830	0.944
EOU1	0.912	0.708	0.584	0.904
EOU2		0.771	0.687	0.894
EOU3		0.736	0.634	0.899
PR1		0.740	0.688	0.899
PR2		0.768	0.729	0.894
PR3		0.814	0.693	0.887
OC1	0.957	0.790	0.740	0.954
OC2		0.855	0.860	0.951
OC3		0.864	0.855	0.950
TAW1		0.776	0.787	0.955
TAW2		0.744	0.807	0.957
TAW3		0.749	0.718	0.956
TSW1		0.898	0.900	0.949
TSW2		0.896	0.921	0.949
TSW3		0.897	0.909	0.949
ICP1	0.899	0.747	0.566	0.879
ICP2		0.718	0.517	0.892
ICP3		0.812	0.690	0.856
ICP4		0.829	0.713	0.849

Table 5. Results of reliability and convergent validity analyses.

Item	Factor Loading	Cronbach's α	AVE	CR
ATT1	0.959	0.955	0.921	0.986
ATT2	0.951			
ATT3	0.969			
SN1	0.956			
SN2	0.964			
SN3	0.960			
EOU1	0.843	0.912	0.802	0.960
EOU2	0.917			
EOU3	0.899			
PR1	0.889			
PR2	0.924			
PR3	0.898			
OC1	0.878	0.957	0.877	0.970
OC2	0.952			
OC3	0.956			
TAW1	0.908			
TAW2	0.940			
TAW3	0.875			
TSW1	0.964			
TSW2	0.977			
TSW3	0.970			
ICP1	0.837	0.899	0.761	0.927
ICP2	0.806			
ICP3	0.914			
ICP4	0.926			
The whole questionnaire		0.952		

Table 6. Correlation matrix for the factors.

	Factor 1	Factor 2	Factor 3	Factor 4
Factor 1	0.936			
Factor 2	0.532**	0.960		
Factor 3	0.58**	0.866**	0.895	
Factor 4	0.509*	0.761**	0.829**	0.872

**p<0.01; *p<0.05.

Table 7. Pearson correlation matrix for the items and the factors.

	Factor 1	Factor 2	Factor 3	Factor 4
ATT1	0.141*	0.813**	0.202**	0.202**
ATT2	0.114	0.869**	0.151*	0.141*
ATT3	0.176**	0.856**	0.243**	0.172**
SN1	0.159*	0.856**	0.247**	0.129*
SN2	0.201**	0.832**	0.198**	0.105
SN3	0.138*	0.848**	0.217**	0.146*
EOU1	0.145*	0.292**	0.645**	0.296**
EOU2	0.077	0.429**	0.667**	0.265**
EOU3	0.149*	0.502**	0.596**	0.235**
PR1	0.203**	0.127*	0.814**	0.214**
PR2	0.196**	0.205**	0.778**	0.263**
PR3	0.186**	0.278**	0.800**	0.201**
OC1	0.811**	0.209**	0.190**	0.009
OC2	0.882**	0.226**	0.105	0.002
OC3	0.885**	0.201**	0.144*	0.010
TAW1	0.765**	0.014	0.067	0.359**
TAW2	0.745**	-0.076	0.105	0.339**
TAW3	0.726**	-0.054	0.228**	0.352**
TSW1	0.903**	0.207**	0.090	0.105
TSW2	0.897**	0.234**	0.116	0.080
TSW3	0.894**	0.214**	0.153*	0.086
ICP1	0.159*	0.248**	0.261**	0.764**
ICP2	0.173**	0.125*	0.365**	0.736**
ICP3	0.218**	0.259**	0.338**	0.732**
ICP4	0.172**	0.316**	0.287**	0.748**

** $p<0.01$; * $p<0.05$.

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Figures

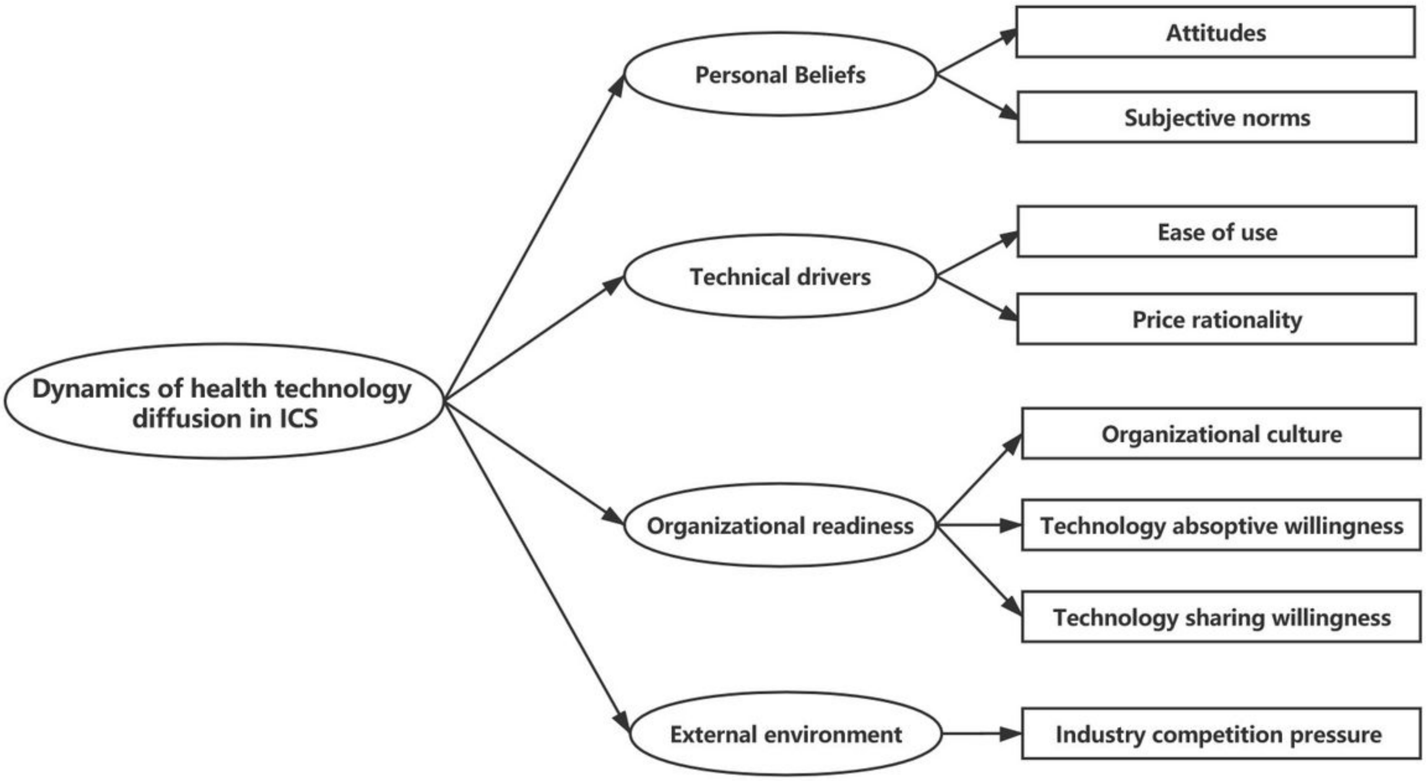

Figure 1

The proposed model for the dynamics of health technology diffusion in ICS.

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