Examination of the factors affecting the acceptance and use of health information technologies in HIMSS public hospital enterprises from the perspective of Unified Technology Acceptance and Use Theory

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ABSTRACT

The first phase in digitizing hospitals is to develop advanced, efficient, stable, complex hospital information management system software that can be integrated with all hospital systems and units. Afterwards, it is necessary to ensure that the processes of change, renewal and adaptation of this system are managed and finally to support the process with in-service training and incentives for sustainability. This study, Turkey in HIMSS Stage 6-7 certified health information technology adoption in the first of two city hospitals and health professionals was carried out to determine its use as effective. The research model presented was based on UTAUT. According to UTAUT, the models incorporated within the UTAUT framework include determining factors that directly affect its intent or use. Shows that increasing HIT service quality and efficacy and using health technologies to improve services are positively affected by the users' performance expectation, expectation of effort, social impact and trust perception. While there is concern about the problems in using HIT, it is stated that due to the competent user education level learning to use technology and integration into the system will be fast. HIMSS standards are followed in European countries extensively in digitalization. Considering the HIMSS stage-6 and 7, in total Turkish hospitals have totally 68% share in this area. In our research, measuring the adoption and use of this new system by healthcare professionals of the first public city-hospitals to receive stage-6 and stage-7, is important in terms of contributing to the literature.

Keywords: Health ınformation technology, ınformation technologies, acceptance technologies.

INTRODUCTION

Information technologies are becoming increasingly common in medicine and health care. This common usage triggered the redefinition of the mission of the medicine and health care. Therefore, the interaction and communication between human-computer is becoming increasingly important in this field. Computer use requires employees to have new qualifications such as training, the ability to obtain and apply theoretical and analytical knowledge, a different approach, and a habit of continuous learning.

HIMSS, which works with the vision of improving patient safety and health care quality by providing better use of technology and Information, measures with different evaluation models for this purpose and offers hospitals the opportunity to compare themselves with similar institutions in national and international fields. Thus, by prioritizing the personal information security of hospitals, registration, processing and evaluation of their electronic data according to an internationally applicable standard is provided. Established in 1961; he established the EMRAM (Electronic Medical Health Record adaptation model) scoring, which is headquartered in Chicago, America, Europe and Asia and is known as a not-for-profit organization, rating and accrediting HIMSS from 0 to 7 to establish the international standards of digital hospitals.

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HEALTHCARE PROVIDER MODELS[1]
Adoption and Maturity Models to move hospitals forward with technology;
  Adoption Model for Analytics Maturity (AMAM)
  Continuity of Care Maturity Model (CCMM)
  Clinically Integrated Supply Outcomes Model (CISOM)

Digital Imaging Adoption Model (DIAM)
Electronic Medical Record Adoption Model (EMRAM)
  Infrastructure Adoption Model (INFRAM)
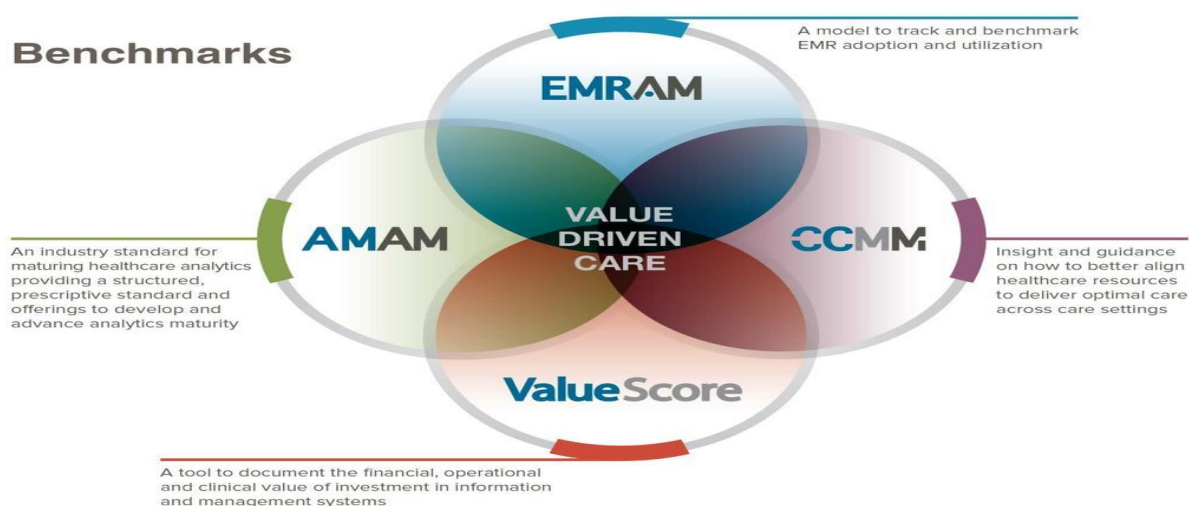 Outpatient Electronic Medical Record Adoption Model (O-EMRAM)

Fıgure 1. **2018 HIMSS EMRAM targets and Road Map 2018 workshop presentation Dr. Ilker KÖSE Istanbul Medipol University.**

2019 ''HIMSS'19 Eurasia Health Informatics and Technologies Conference and Yozgat hospital, which served as HIMSS Stage 6 during its operation, became Europe's first HIMSS Stage 7 area hospital in 2018.The study questions were prepared accordingly, but the participants were not asked HIMSS to be able to determine the level of HIMSS preparation.

It has been known that strategic Information Technology (IT) such as Information technology studies related to investments "Enterprise Resource Planning (ERP)" provide managers of business investments with opportunity to improve tangible and intangible long-term operational effectiveness (Nicolaou and Bchattacharya 2006). The development of health practices and the integration of IT into these institutions enables an increase in the activities. The success of any process in the 21st century, especially with regard to information and knowledge searching, acquisition, processing, storage and transfer, is strongly based on the adoption, utilisation and effectiveness of these tools (Fari, 2015).

In addition to advances in health practices, IT have been developing day by day and hence have been a triggering factor in the realization of public

reforms in many countries (Kavuncubası, 2000). One of the most important problems encountered at this stage is the acceptance and adoption of these systems by healthcare professionals. The importance of user adoption of IT systems in Management Information Systems is highlighted (Bandoyopadhyay 2010). In practice, it is suggested that success levels of users and managers are limited to the level of knowledge and experience, no matter how powerful the software is, and that one of the obligatory areas of improvement in health is effective use of IT (Ak, 2009). Technological advancements have accelerated the deployment of healthcare information systems (HIS) with the potential to enhance productivity, lower costs, reduce medication errors, and ease the manpower strain on the healthcare industry (Yang, Kankanhalli & Lim 2013). The software needed for such studies is complex to develop, manage, and modify, however. As a consequence, studies are restricted to a few settings where major resources are available and international staff commitments can be made (James, Phillips Bruce & MacLeod Brian Pence, 2000).

Adoption of new understanding along with reforms in healthcare and quality improvement in

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[1] https://www.himssanalytics.org/

health care institutions with the use of a variety of HIT systems aims to increase the quality of health services and to reduce the costs to minimal levels. The inclusion of new practices in IT into healthcare institutions is a positive practice along the fact that there is less than needed detailed information about these systems is becoming a significant problem. Moreover, it is evident that the sustainable success of innovative medical technologies in practice e.g., new products, re-organized workflows or disruptive procedures, depends on the acceptance-to-work of the employees working in the re-organized process. And this acceptance is heavily influenced by the impact of the innovative technology on procedure handling, costs, workflow efficiency, and patient safety. All these aspects are a direct result of the nature of design of an innovative technology (Von, Von Eiff, Roth & Ghanem 2019).

IT are used to minimize uncertainties. It also guarantees the responsiveness of IT to the environmental flexibility and the demands of external environmental factors (Koza, 2010). Furthermore, information and knowledge sharing can only be hassle-free, timely and effective with the application of the necessary technology (ICTs) (SA Fari, 2015). UK, Australia and Canada related health information technology workforce EMRAM scoring which is the analysis of HIMSS Analytical Database system. In this study, unlike other studies, a successful the importance of adequate and well-trained staff for technology integration (Hersh, 2010).

In their own study; they aimed to examine the factors affecting the use of use HIT by implementing and testing the UTAUT. In the same research, it was revealed that individual differences, especially age and gender, directly affect the use of technology (Yi, Wu &Tung 2006). The study provides healthcare decision makers and policy makers with information that will aid them in planning and implementing systems for long-term care. As a result of parallel data analysis in our study, it has been found that factors that have a significant effect are performance expectation, effort expectation and facilitating conditions. The best predictor of behavior is intent. Intent is a cognitive indicator that indicates that the individual is ready to exhibit behavior (Alajmi, 2008).

IMIA recommends that all health professionals should be acquainted with ICT and be able to use technology responsibly in their daily work (IMIA, 2000). Nowadays especially with the fast processors, emerging database softwares and internet technologies have significant impact on the

strategic decisions of management levels. Strategic Management of Information Systems in Healthcare explores how healthcare organizations can use information technology to achieve better operational performance and strengthen their market position (Brown, Stone, and Patrick, 2005). Managers responsible for IT applications should be aware of this situation and should be included in the decision-making process before determining technical preferences in organizational practices (Rodríguez & Pozzebon 2011). Otherwise, individual problems by the use of IT cannot be detected and instant problems will not be taken into consideration and more complicated problems may arise in later processes. Correct and appropriate use of HIT seems to have positive results such as improving productivity, reducing costs, reducing drug errors and alleviating manpower burden in the health sector. UTAUT working model, which was developed by Venkatesh, considers three variables to determine the intent behavior. These are; performance expectation, effort expectation and social impact. The UTAUT model including health sector technologies such as information and information systems, healthcare facilities and tele-health care services has been successfully implemented. The UTAUT model has proven to have good predictability (Venkatesh, Morris, and Davis, 2003). The integration of ICT in teaching and learning (IITL) brings about powerful learning environments and helps students to deal with knowledge in active, self-directed and constructive ways (Luhamya, Bakkabulindi & Muyinda 2017).

DATA and METHODS

This study, Health tourism, which contributes to the rate of foreign patients with 0.67% (551,748/ 82300822x100) compared to the population of Turkey, has infrastructure and information technology equipment, conducted between July and September 2017 in the HIMSS Stage7 Yozgat (capacity of 475 beds, 1100 personnel) and HIMSS Stage 6Isparta (capacity of 780 beds and 2687)public hospital under the authority of the Ministry of Health – Department of Public hospital, had participation of 1000 health personnel and included 50 questions (5 expectation of performance - 4 expectation of Safety - 3 perception of risk - 6 expectation of effort - 8 Social Impact - 10 facilitating conditions-3 behavioral attitude -5 intention to use) with dependent and independent variables concerning health related technology acceptance and usage. In the questionnaire, there are 50 questions related to the personal information of (hospital managers-doctor

- nurse - midwife - medical secretary – laborant – anaesthetist - X-ray technician) health workers. Data were analyzed by using SPSS 23 package program and its reliability was calculated according to Cronbach Alpha coefficient. Chi-square test, T test and variance analysis were used to analyze the relationship between dependent and independent variables.

For independent variables such as socio-demographic variables, t-test for continuous variables, one-way analysis of variance, post-hoc tests for determining meaningfulness of significant results were applied. P <0.05 was considered statistically significant in all analyzes.

The study examines the variables of performance expectancy, effort expectation, social impact and facilitating conditions that affect the use and acceptance of existing information systems by users of information systems. The research model presented was based on UTAUT. According to UTAUT, the models incorporated within the UTAUT framework include determining factors that directly affect its intent or use. These determining factors are namely performance expectations, expectation of effort, social impact and facilitating conditions. These factors play a prominent role as direct determinants of user acceptance and use behavior. The aim of this study is to try to estimate the intentions of the individual to adapt to a specific system or technology, considering the above-mentioned factors (Venkatesh, Morris and Davis, 2003).

FINDING

At this stage of the research, the demographic features of the health professionals and the findings of the variables regarding the acceptance and use of HIT are included. Yozgat province hospital provides health services to 418,650 inhabitants; In Yozgat Public Hospital; a questionnaire was given to a total of 500 users, 73.4% of whom were women and 26.6% of them were male, 55.6% were 18-30 years old, 31% were 31-40 years old, 12.6% 41-50 years and 0.8% are 50 years and over. In addition, 52% of the participants had undergraduate level and 70.6% were nurses-midwives and health officers. When the experience of using health information technology system is examined, it was seen that 41% had used information technology system for 6 years and less and 39.4% for 7 months-1 year (Table1).

Isparta Provincial Hospital provides health services to 433,830 inhabitants; In Isparta Public Hospital; a total of 500 users were surveyed, of

which 47% were Male and 53% were female, %57,6% were aged between 31-40, 33,2% between 18-30, 8,6% between 41-50 and 0,6% aged 50 years old and over. Moreover, 77.8% of the participants had undergraduate education level and 52.2% of them were Nurse-midwife-health officers. When the experience of using health information technology system is examined, it was seen that 29,8% had used information technology system between 6-7 years and less and 16,6% for a period between 4 and 5 years(Table1).

The average risk perception of women was higher than men. In a study conducted with 296 participants in Bangladesh Alam et al. (2020) factors affecting the acceptance of technology used in healthcare services in developing countries were investigated. In the study, it was seen that performance expectation and effort expectation differ between men and women. Accordingly, it is among the findings that women's performance and effort expectations are higher than men'. In the study conducted Hoque (2016) in Bangladesh with 227 participants, gender differences in the acceptance of technological developments in the field of health in developing countries were examined. In the study, it was observed that gender caused differences in behavioral attitude levels towards health services. It is seen that the concept of usefulness perceived for the use of technology in women is more and more adopted than men.

It was observed that the average intention of men to use was higher than that of women. The study, conducted Alam et al. (2020), shows that the intention of men to adopt and use technology is higher than women. In the study, it was also determined that gender did not differ significantly with perceived reliability and social impact. In the study conducted by Hoque (2016), it was determined that behavioral attitude and ease in men were higher than in women. Technology assumptions about the availability of online platforms in online health institutions were examined (Mendi and Akyazı 2016). According to the results of the study, it was observed that gender did not affect technology acceptance and did not differ. In our study, significant superiority of various concepts was determined in men and women. There is a similar situation in the studies in the literature. However, there are findings indicating that gender does not differ significantly. It can be thought that the differences take place in the relevant departments in line with the ability of individuals to use technology in health institutions and their qualification levels.

Table 1. **Statements given to the variables related to HIT use of healthcare professionals**

	ISPARTA		YOZGAT	
	Cove.	SS	Cove.	SS
Performance Expectation (PE)				
HIT helps speed up the business process.	4.3	0.9	4.00	0.96
HIT increases patient / customer satisfaction.	4.0	0.7	3.97	0.8 0
HIT increases the quality and efficiency of your service.	3.8	0.9	4.04	0.8 0
HIT improves accessibility and communication with patients / clients.	3.7	0.8	3.99	0.82
HIT makes me make fewer mistakes.	4.0	0.8	3.97	0.82
Trust Perception(TP)				
I think the data provided by the health information system is reliable .	3.9	0.9	3.83	0.79
I believe that using the health information system is risk-free .	3.7	0.9	3.52	0.98
I have a clear understanding of the functions of health information systems .	3.7	0.8	3.46	0.84
I think that the safety and privacy of those who use and use the health information system are protected .	3.8	0.9	3.52	0.88
Risk Perception(RP)				
I am concerned about the technical problems in the health information system .	3.8	0.8	3.89	0.97
I am afraid of making an error that cannot be corrected when using the IT system .	3.6	1.0	3.49	1.06
I'm worried it'il take me a long time to learn how to use the health information system .	3.5	1.0	2.99	1.14
Effort Expectation(EE)				
HIT is easily available .	3.7	0.7	3.80	0.81
HIT helps make your service easier .	3.8	0.8	3.85	0.75
HIT bug / malfunction can easily fix.	3.9	1.0	3.19	0.88
Your HIT is always updated .	3.9	0.8	3.54	0.79
HIT resolves itself when an error occurs .	3.6	1.1	2.79	1.05
Complying with Computer Security rules (passwords, backups, access restrictions) puts me on extra charge .	3.8	0.9	3.61	1.08
Social Impact(SI)				
Your colleagues expect your service to be better by using the technology system.	3.8	0.8	3.87	0.79
Your colleagues think you can use technology efficiently.	3.9	0.8	3.79	0.81
Patients and their relatives believe that the technology system is very useful for your organization.	3.7	0.9	3.43	0.89
Your healthcare company hires IT staff to look at the IT system.	3.7	0.9	3.24	0.87
There are enough staff in your healthcare service to take care of IT experts and related staff.	3.5	1.0	2.92	0.92
Your managers support training and participation in training and seminars on new technologies.	3.7	0.8	3.54	0.85
Your HIT specialist has a high level of experience.	3.5	0.9	3.09	0.9 0
If you have a HIT problem, your IT specialist can solve it.	3.7	0.9	3.42	0.84
Facilitating Conditions(FC)				
Your healthcare business attaches importance to technology-driven service.	3.8	0.8	3.73	0.82
The healthcare business always develops and raises the IT system .	3.7	0.8	3.57	0.76
Your healthcare business has an IT department .	3.7	0.8	3.7	0.86
Your health care facility provides training for every employee who is important on the system / technology.	3.9	1.0	3.54	0.81
Your healthcare business supports training for new employees who are run by a professional trainer.	3.8	0.9	3.68	0.74
Your healthcare business supports capital investment in systems and technology.	3.6	0.8	3.38	0.64
Your healthcare business takes care of bringing new technology.	3.6	0.8	3.48	0.77
When other healthcare tools bring new technology, your health care will pay special attention.	3.8	0.9	3.52	0.67
When there is new technology, your healthcare business always decides to try and buy the new technology.	3.6	0.9	3.26	0.78
You believe that the technology used in your healthcare business is better than other healthcare systems.	3.6	0.8	3.31	0.85
Behavioral Attitude(BA)				
I prefer to use the IT system even if it is not compulsory.	3.6	0.9	3.24	1.03
I have difficulty using health information technologies.	3.6	1.1	2.93	1.14
Health IT increase the speed and quality of my service.	3.6	0.9	3.47	0.95
Intended Use(IU)				
You want to take advantage of new health IT to serve your patients / customers.	3.9	0.8	3.84	0.8
I believe that the use of new technologies is necessary to increase efficiency by providing better quality service to your patients / customers.	3.9	0.9	3.82	0.82
It is good to use IT in the health system.	3.8	0.7	3.74	0.75
I believe that the scope of HIT should be expanded.	3.8	0.8	3.99	0.75
I believe that I will use HIT in the future.	3.9	0.7	3.88	0.8

Employees between 41-50 years of age have higher perception of trust and expectation than those who are 18-30 years old, 31-40 years old and 50 years old. In the study conducted by Deng, Mo and Liu (2014) with the participation of 424 individuals in China, users' adoption of mobile

technologies used in healthcare services were examined. Accordingly, it was observed that the group named as middle age (40-59) group had higher perception of trust and value than individuals in the advanced age group (over 59).

It has been observed that the risk perception of employees between the ages of 41-50 is higher than those between the ages of 18-30 and 31-40. Social effects and facilitating conditions of employees between the ages of 31-40 and 41-50 were higher than those aged 50 and over. Kamdjoug (2018) examined the technology assumptions used in health institutions in a study conducted with 228 health workers in Cameroon. In the study, it was determined that the social effect levels of individuals aged <40 years were higher than the other individuals in the age group of 40 and over.

In the study conducted Cimperman, Brencic and Trkman (2016) with 400 participants in Slovenia, the technology acceptance levels of individuals in the field of tele-health were examined. In the study, it was observed that there was no significant interaction between age and social impact. In the study conducted by Mendi and Akyazı (2016), it was determined that age does not differ for technology acceptance in the field of health. In the study conducted by Yu, Li and Gagnon (2009) with 134 participants in Australia, IT acceptance factors in health care facilities were examined. In the study, there was no difference between age and technology acceptance levels.

Considering the findings of the study in the literature and the findings in the studies regarding the age concept, similar and different results draw attention. When similar findings are examined, it is understood that consistent results are obtained. However, it is another situation that the findings in different studies state that there is no significant change between age and technology acceptance concepts. It can be said that these differences vary depending on individuals' different experiences and competencies as well as their professional seniority. In other words, in the studies in which the findings of the age-related technology acceptance levels are not affected, it is thought that the participants have sufficient professional experience, the approaches regarding the technological acceptance of health institutions and the differences in the system-technologies used by the participants.

It has been observed that the performance expectations of the graduates of higher education are higher than those of high school, university, graduate and doctorate. It has been observed that

the trust perception of university graduates is higher than that of high school and college graduates. It was observed that the risk perception of employees who graduated from college was higher than those who graduated from university.

It has been observed that the effort expectations of the graduates of college are higher than those of high school, university, graduate and doctorate. It has been observed that the social effect of the graduates of high school, university, master's degree are higher than those of doctorate. It has been observed that the effort expectations of the graduates of college are higher than those of university and master's degree. Behavioral attitudes of doctoral graduate employees were found to be higher than those of high school, college and university graduates. It has been observed that the usage intention of high school and college graduates is higher than that of university graduates.

In the study carried out Ye et al. (2019) with the participation of 474 users in China, the concepts affecting the acceptance of artificial intelligence technologies used in health services were investigated. In the study, it was determined that social impact, resistance perception, ease of use, risk perception and behavioral attitude did not differ significantly with graduations. In the study conducted Cimperman, Brencic and Trkman (2016), it was determined that the educational levels do not affect the intention to use.

When the education level is taken into consideration, it is seen that our study findings are not similar to the findings in the literature. Health institutions regularly organize information and trainings on technology for their employees. In the studies carried out in countries other than Turkey (China and Slovenia), it is seen that the different findings may vary depending on organization periods, the content and types of these trainings, basic education and theory-practice-oriented technology of individuals in the early stages of educational life, and therefore do not vary according to the educational level of perception towards technology. In addition, it can be thought that the types of technology examined in the studies in the literature differ with the technology examined in our study and their knowledge levels are also affected in this direction.

Employees with 11 or more years of experience have higher performance and effort expectations than those with 4-7 and 7-10 years of experience. It has been observed that employees with 1-3 and 11 years or more experience have higher perception of trust than those with 4-7 years of experience. The

risk perception of employees with 1-3 years of experience was found to be higher than that of employees with 4-7 and 7-10 years of experience.

It has been observed that the facilitating conditions of employees with 11 years or more are higher than those with 1-3 years of experience. It has been observed that the facilitating conditions of employees with 7-10 years and 11 years and above are higher than those with 4-7 years experience. In the study conducted by Yu, Li and Gagnon (2009), it was determined that the year of healthcare

professionals' occupation does not significantly affect their perception of trust, performance, expectation of effort, risk perception and facilitating conditions. Our study findings regarding the year of occupation and technology acceptance differed from the studies in the literature. It is thought that this difference arises from the fact that it may vary depending on the level of knowledge and experience of the research participants.

Table 2. **Relationship Analysis of variables related to HIT Acceptance and use of healthcare professionals**

		Performance Expectation	Trust Perception	Risk Perception	Effort Expectation	Social Impact	Facilitating Conditions	Behavioral Attitude	Intended Use
Performance Expectation	r	1							
	p								
	N	500							
Trust Perception	r	0,372**	1						
	p	0,000							
	N	500	500						
Risk Perception	r	0,170**	-,063	1					
	p	0,000	,157						
	N	500	500	500					
Effort Expectation	r	0,419**	0,439**	-,043	1				
	p	0,000	0,000	,342					
	N	500	500	500	500				
Social Impact	r	0,350**	0,345**	,085	0,518**	1			
	p	0,000	0,000	,057	0,000				
	N	500	500	500	500	500			
Facilitating Conditions	r	0,243**	0,363**	,030	0,498**	0,635**	1		
	p	0,000	0,000	,510	0,000	0,000			
	N	500	500	500	500	500	500		
Behavioral Attitude	r	0,378**	0,139**	0,120**	0,379**	0,303**	0,323**	1	
	p	0,000	0,002	0,007	0,000	0,000	0,000		
	N	500	500	500	500	500	500	500	
Intended Use	r	0,385**	0,311**	-,027	0,364**	0,396**	0,437**	0,310**	1
	p	0,000	0,000	,545	0,000	0,000	0,000	0,000	
	N	500	500	500	500	500	500	500	500

** $p < 0,01$

As the perception of trust, perception of risk, expectation of effort, social impact, facilitating conditions, behavioral attitude and intention to use increases, the PE increases. In the study conducted by Kamdjoug (2018), it was determined that the PE increased with increasing EE and FE. In the study conducted Cimperman, Brencic and Trkman (2016), it was seen that the perception of trust, effort expectation, facilitating effect, behavioral attitude and performance expectation were in positive

interaction. In the study conducted by Wahab (2017) with 204 health workers in Iraq, the use of health technologies in private health institutions was examined. In the study, it was determined that there was no significant interaction between intention to use and PE.

As the expectation of effort, social impact, facilitating conditions, behavioral attitude and intention to use increases, the perception of trust increases. In the study conducted by Alrazaq et al.

(2019) with the participation of 624 patients, the concepts affecting the use of e-health records used in health services by individuals were examined. In the study, it was seen that PT increased positively with increasing PE. In the study conducted by Wahab (2017), it was observed that there was no interaction between intention to use and PT.

As the behavioral attitude increases, the risk perception increases. In the study conducted by Ye et al. (2019), it was determined that the increase of RP affects the usage intent of the users towards technology. The study conducted by Andrews, Hajanayake and Sahama (2014) with 750 participants examined the perception levels of individuals in Australia regarding electronic health technologies. In the study, it was determined that RP had a direct effect on the intention to use and technology acceptance levels and caused negative changes. In other words, increasing RA decreases usage intent and technology acceptance.

As social impact, facilitating conditions, behavioral attitude and intention to use increase, expectation of effort increases. The findings of the study conducted by Alam et al. (2020) show that EE does not have any effect on BA. In the study conducted by Alrazaq et al. (2019), it was observed that with increasing PE, EE was positively affected by this situation. In the study carried out by Cimperman, Brencic and Trkman (2016), it was determined that computer anxiety was among the most important impacts of EE and had negative effects on EE. In the study carried out by Wahab (2016), it was determined that as the intention to use increases, the EE also increases.

As the facilitating conditions, behavioral attitude and intention to use increase, the SI increases. The technology assumptions used in healthcare services were examined in the study carried out by Gladys et al. (2020) with 199 participants (patient, doctor and nurse) in Lebanon. The study suggested that as the intention to use increased, SI also increased. The factors determining the acceptance of mobile health technology services were examined in the study conducted by Lee et al. (2018), with 400 users in South Korea. In the study, it was determined that behavioral attitude, facilitating conditions, intention to use, and social effect were in direct interaction and a positive change was observed. Wahab (2016) determined that there is no interaction between intention to use and SI. In the study conducted by Bawack and Kamdjoug (2018), it was observed that SI had a direct and positive effect on technology adoption of healthcare professionals.

As the facilitating conditions, behavioral attitude and intention to use increase, the FF increases. In the study carried out by Gladys et al. (2020), it was observed that FE increased with the increase in behavioral attitude. In the research conducted by Lee et al. (2018), it was seen that FE is directly related to perceived benefit, intention to use and ease of use. It was observed that FE was positively affected by the increase in perceived benefit for technology. In the study carried out by meta-analysis method by Zhao, Li and Zhang (2019), considering the 43 academic studies, online health method acceptance levels and economic development effects were examined in healthcare technologies. It was determined in the study that the increasing facilitating effect increased the acceptance of technology. In the study conducted by Wahab (2016), it was determined that the intention to use does not affect the FE.

As the intention to use increase, the BA increases. In the study conducted by Alam et al. (2020), it has been determined that the material value of technological products and the increase of PT, SI, FE, EE and PE increase the BA for technology used in health services. Other findings of the study show that increasing BA increases the use of technology. In the study carried out by Wang et al. (2020) with the participation of 406 users, the use of technological wearable products developed in the field of health of users was investigated. In the study, it was observed that the tasks related to PE, EE, FE, SI and technology had a positive effect on BA in consumers. In the study conducted by Alam et al. (2020), it was determined that PE, SI, FE and perceived reliability of the individuals positively affect the BA to adopt technology use. It is also among the other findings that price and EE do not have an impact on this BA. In the study carried out by Sarosa (2019) with the participation of 589 university students who continue their education in Indonesia, the perceptions regarding the use of technological products and services used for educational purposes in the university were examined. In the study, it was observed that the PE, EE, FE, SI and PT of the university students for brand affected the behavioral attitudes against technology positively. In the study conducted by Alrazaq et al. (2019), it was determined that PE, EE, PT, and confidentiality interact positively and significantly with BA, and that SI does not affect BA. In addition, it was determined that BA and FE positively affect the usage behavior. In the study carried out by Ye et al. (2019), it was determined that as the perceived benefit towards technology acceptance, FE, SI and intention to use increase, the

BA also increases.

In the study conducted by Jewer (2018) with 118 participants in Canada, the intentions of the use of healthcare technologies for patients to wait in the emergency departments were examined. In the study, while PE and FE technology showed significant effects on BA, the effect of EE was not statistically significant. In the study carried out by Lee et al. (2018), it was seen that the perceived ease of use was found to have a direct negative interaction with BA. In addition, resistance to change, perceived usefulness, SI and FE were found to have a direct positive effect on BA. In the study conducted by Kamdjoug (2018), it was determined that PE, SI, EE and self-efficacy had a direct and positive effect on BA.

In the study conducted by Tavares and Oliveira (2017) with 597 participants in Portugal and the United States of America, admissions for electronic health records were examined. In the study, it was determined that EE, PE and SI affect BA and this was of the enhancer type. In the study carried out by Wahab (2016), it was determined that as the intention to use increases, the BA also increases. In the study conducted by Hoque (2016), it was determined that the perceived value of technology preferred in the field of health positively affects BA in users.

The study, which examined the factors for acceptance of information systems within the framework of UTAUT, was carried out by Oktal (2013) with the participation of 298 IT users. In the study, it was observed that PE, EE and FE were associated with BA and positively affected. In the study, it was also determined that SI did not significantly affect BA. In the study conducted by Alawadhi, SAM (2007) with the participation of 800 university students in Kuwait, the technology usage levels of students in public services were examined in developing countries. In the study, it was determined that PE, EE, peer effect and FE are direct determinants of technology use purpose and behavior. In addition, it was determined that internet experience and academic course type control the effect of the participants on the purpose and behavior of the participants and the use of new technology services was positively adopted by the participants. In the study, it was observed that the adoption of technology improved depending on the understanding of reform, the usability of technology, making the existing activity-services practical and fast. In cases where technology acceptance was negative, it was determined that the participants increased due to negative PT, fear and anxiety regarding technology.

It was observed that our study findings regarding PE, PT, RP, EE, SI, FE and BA differed mostly from the study findings in the literature. The fact that studies with similar findings are more than studies with different findings indicate the consistency of our study findings. It can be said that the inclusion of different findings depends on the technology differences used by the study participants and the non-employment of the participant group in the health sector.

DISCUSSION

In this study included both literature review and research of IT use in health sector with the participation of healthcare professionals who provide health services in urban hospitals, which are defined as a new health model, are based on the latest technological systems and labor-intensive enterprises.

Our study concluded that HIT improve the quality and efficiency of the service offered and that by using these technologies, the service is expected to be better and the data provided in parallel with these technologies is reliable. Furthermore, the satisfaction is expressed that HIT will help facilitate the service and that their businesses care about the service driven by the technology. While employees are concerned about frequent problems using HIT, it is revealed that it will not take long to learn how to use technology, and integration into the system will be rapid, as the majority of users are licensed at educational levels. However, without better information, stakeholders interested in promoting or considering adoption may not be able to determine what benefits to expect from health information technology use, how best to implement the system in order to maximize the value derived from their investment, or how to direct policy aimed at improving the quality and efficiency delivered by the health care sector as a whole (Chaudhry, Wang, Wu , Maglione , Mojica &, Roth, 2006).

Health professionals generally believe in the importance of information systems and they receive training in information systems, especially in the form of in-service training, and consider themselves sufficient in the use of information technologies.

However, in recent years the development of health services in parallel with the ability of health workers to use IT to the growing importance of the use of IT in the delivery are also of great importance.

It must be aimed to improve health information systems and increase the quality of service

provision by foreseeing the contributions of service-oriented information technologies to the health system, in line with international standards, appropriate for the sociological, demographic and cultural structure of the employees. In the digitization process of hospitals starting with HIMSS, it is necessary to develop high level, effective, efficient and complex hospital information management system software that can work integrated with all hospital systems and units, to support the process with training, motivation and incentives for the sustainability of all processes and to ensure that the innovation, revision and adaptation processes of this system are managed very well. When we look at the international field, it is seen that the lack of physical infrastructure in Iran, inadequate in-service training in China, and the lack of training in information technology personnel in England, Australia and Canada negatively affect this process. In order to ensure the effective and efficient sustainability of the provision of health services in macro structure, trainings should be provided to increase the effectiveness of health information information systems and technology use of both health professionals and patients who benefit from the service. It should be ensured that updated information is supported with new education models and made available to health professionals. While hospital management employs personnel working in Hospital Information Management Systems (HIMS) at every stage of the process, HIMS expert personnel should be available 24/7, where the personnel can easily reach and get support by prioritizing the employment of experts by adhering to the principles of merit.

Along with increasing the number of digital city hospitals across the country in coordination with international institutions and organizations in the provision of quality and efficient health services, it should be aimed to arrange the information and experience of institutions that provide standards for health services such as HIMSS in accordance with the country's conditions. The findings in the study and the findings regarding the gender and age variables in the literature have both similarities and differences. In order to examine the effects of these differences on technology acceptance in a more concrete way, conducting researches taking into account the relevant variables may contribute to the literature in this direction.

It was observed that our study findings regarding education level factor differed from the findings in the literature. In order to determine the causes of this difference, carrying out more detailed researches on education levels may reveal the

cause of the problem. In the studies to be carried out for technology acceptance, it will be appropriate to examine at what level of education individuals are, as well as whether they have received technological education in these educational institutions, in addition to whether they are involved in technology education and information individually and institutionally in their professional life.

CONCLUSION

The average risk perception of women was higher than men. It was observed that the average intention of men to use was higher than that of women. Employees between 41-50 years of age have higher perception of trust and expectation than those who are 18-30 years old, 31-40 years old and 50 years old. Employees between 41-50 years of age have higher perception of risk than those who are 18-30 years old, 31-40 years old and 50 years old. It has been observed that the social impact and facilitating conditions of employees between the ages of 31-40 and 41-50 are higher than those of employees aged 50 and over. It has been observed that the performance expectations of the graduates of college are higher than those of high school, university, master's degree and doctorate.

It has been observed that the trust perception of university graduates is higher than that of high school and college graduates. It was observed that the risk perception of employees who graduated from college was higher than those who graduated from university. It has been observed that the effort expectations of the graduates of college are higher than those of high school, university, master's degree and doctorate. It has been observed that the social effect of the graduates of high school, university, master's degree are higher than those of doctorate. It has been observed that the effort expectations of the graduates of college are higher than those of university and master's degree. Behavioral attitudes of doctoral graduates were found to be higher than those of high school, college and university. It was observed that the usage intention of high school and college graduates is higher than that of university graduates. Employees with 11 or more years of experience have higher performance and effort expectations than those with 4-7 and 7-10 years of experience.

It has been observed that employees with 1-3 years and 11 years of experience and above have higher trust perception than those with 4-7 years. It was observed that the risk perception with 1-3

years of experience was higher than those with 4-7 years and 7-10 years. It has been observed that employees with 11 years and higher of experience have higher facilitating conditions than those with 1-3 years. It has been observed that employees with 7-10 years and 11 years and higher of experience have higher facilitating conditions than those with 4-7 years. As the perception of trust, perception of risk, expectation of effort, social impact, facilitating conditions, behavioral attitude and intention to use increases, the performance expectation increases as well. It aims to ensure the optimal use of IT in the provision and development of health services, and facilitates compliance with international standards for the processes and the accrediting systems that control the level of using information technologies in the functioning of the health institution.We believe that, this study will guide who are willing to continue on further studies on behalf of.

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