DEVELOPING (UTAUT 2) MODEL OF ADOPTION MOBILE HEALTH APPLICATION IN JORDAN E- GOVERNMENT

MALIK BADER ALAZZAM[1], YASSER MOHAMMAD AL-SHARO[2], MAJED KAMEL AL-AZZAM[3]

1Department of software engineering[1], Ajloun National University Ajloun, 26810, Jordan
2Department of   computer science[2], Ajloun National University Ajloun, 26810, Jordan
3Business Administration Department Yarmouk University

ABSTRACT

Mobile Health Application (MHAs) positively influence the quality of hospital services and lessen health costs. Lack of education and awareness may hinder the use of the MHA system. Through the Unified Theory of Acceptance and Use of Technology (UTAUT) framework, this research scrutinized the elements which influence the MHA acceptance. The UTAUT model is a new tool for evaluating the integration/adoption of MHAs. Through empirical studies and the use of the UTAUT2 model we aim to clarify the behavioral exercise of healthcare specialists and their propensity to using the MHA system.
The objective of the research is to test trust information elements which influence integration and adoption of the MHA by healthcare providers. This research focuses on Jordanian hospitals which use the MHA. The study further direct to create a well-defined view of which factors influence the adoption and acceptance of the MHA, by making use of questionnaires as a starting point for in-depth and comprehensive future studies.
Methods: The article made use of surveys coursed through Jordan hospitals to gather data from healthcare providers/specialist/professionals, who were familiar with the MHA system. A total of 278 responses were derived from 555 survey-forms for data analysis.

Keywords:- *Mhas, Healthcare Professionals, UTAUT1, UTAUT2, Acceptance, Trust In Information, E Government*

1. INTRODUCTION

The Mobile Health Application (MHAs) is the collective body of diverse info instruments, which include: test systems, emergency information, electronic prescription, DSS, telemedicine, and digital imagery), that could positively impact on healthcare professional's decision-making processes. Through the integration of the MHA, daily hospital operations and practice could be safer. A review of literature proves the many benefits of MHA for the patient [1]. Benefits include, increased quality of health care, due to easily accessible healthcare-related data. This could significantly improve coordination among healthcare professionals [2]; positively increase efficiency of primary health care; empower and encourage patients' active participation in decisions relating to health care [3]; and may be used for proper transfer of information on suggested precautionary health care, through primary-care channels [5]. Moreover, it is a device which encourages technology transfer and knowledge exchange, as well as help in the decision making based on up to date information about its patients [1].

I.   CURRENT KNOWLEDGE OF MHA ACCEPTANCE

MHA is usually implemented in a lot of high-income countries [2]. An example of which is the "USA Institute of Medicine", which described the MHA as "an important technology" for "eHealth" [3]. Despite this, however, MHA is still not as widely accepted even by healthcare professionals practicing in the US [4] [5], United Kingdom, and Canada [6]. An increasing number of studies on MHA and acceptance shows that integration projects are often withdrawn soon after the research stage [7]. Common causes associated with the low acceptance of MHA include lack of initial/start-up funds, lack of monetary benefits, subpar technology, non-prioritization, and even opposition from healthcare providers and professionals [8]. MHA integration and acceptance

needs large capitalization and investment in time and effort, but the radical change to hospital work and service is clear [9]. The impressions on the MHA usually vary between health professional groups, which makes MHA's acceptance by the medical community even more complex within a pluralist eHealth regime [10].

2. RELATED WORK

A. Unified Theory of Acceptance and Use of Technology (UTAUT)

For two decades, researchers held seminars and lectures to encourage acceptance. Several theories and models have been used to forward these studies in different locales for various areas of the study. The findings and conclusions from these studies differ. Proponents of the UTAUT model uniformed eight theories which is namely: Theory of reason Action (TRA), Technology acceptance model (TAM), Motivational model (MM), Theory of planned behavior (TPB), combined TAM and TPB (C-TAM-TPB), Model of PC Utilization (MPCU). Innovation Diffusion Theory (IDT); and Social Cognitive [1]- [8], [9].
Theory (SCT) Bandura (1986). The UTAUT adds up different sides of all the concepts from the abovementioned theories into four elements, which says that intention, usage, and four (4) key constructs are the key factors to their interrelationships [10]. Figure 1 shows the dynamics of the UTAUT model. The UTAUT Model forms four constructs, namely: Effort Expectancy (EE), Performance Expectancy (PE), Social Influence (SI), and Facilitating Conditions (FC). Certain studies under the UTAUT model also consider Endogenous Variables (EV), which refer to those which influence behavior and intent to use the technology. There are four other factors to consider, namely: age, experience, gender, and voluntariness. Performance Expectancy means the degree by which an individual considers the benefit and performance of the technological system [2], [11]. The degree by which the MHA system can be easily used is a key factor and indicator, which plays a role to figure out the "Behavioral Intention to use" technology and its EE (Effort Expectancy). A person's perception of how important a new system is functioning as a significant indicator to determine technological intention to use. Facilitating conditions refers to the propensity to believe that the technology will play a vital and effective function in the organizational and technical structure.

Employing the UTAUT model in this study is justifiable and sensible due to its worldwide and integrative features, which incorporate a multitude of explanatory variables from the primary theoretical models used in analyzing and defining technology acceptance and use. More specifically, [10] it involves an exhaustive analysis of relevant works and proposes an amalgamated framework which combines the public influences on the core concepts. Thus, we can surmise and expect that such theory which employs and adopts such contributions from other models will be the better choice for analyzing and defining technology acceptance and use [9].

B. UTAUT2

[4] Advances the UTAUT, to accurately analyze adoption and usage of technology from a buyer's point-of-view. It introduces three new concepts, namely Hedonic Motivation (HM), Price Value (PV), and Habit (HT). Demographic attributes of users were also considered, namely: experience, age, and gender, which may influence behavioral intention (BI) and use of technology. Findings were obtained from the employment of 2-pronged web-based surveys. It took four months to collect 1,512 responses. As compared to UTAUT, the added factors considered in UTAUT 2 resulted in a greater variance in behavioral intention (BI).

1) Hedonic Motivation (HM)
Hedonic motivation may be defined as an internal form of incentive, which may include fun, enjoyment, or pleasure derived from using technology. It is considered as key concept to define technology reception and usage. HM is akin to Perceived Enjoyment, and "playfulness" is like TAM, in functioning as an element of intrinsic motivation, [4], [12], [13].

2) Price Value (PV)
Generally, people choose to avail of products/information if they see that the benefits derived therefrom are greater than the actual cost of purchasing the product/information, this is known as price value. It can be further defined, in the context of the theory, as learner's mental exchange between the economic cost and paybacks of using the technology, [4], [13], [14].

3) Habit (HT)
Habit is considered as a robust indicator of upcoming technological use [14]. Habit is defined

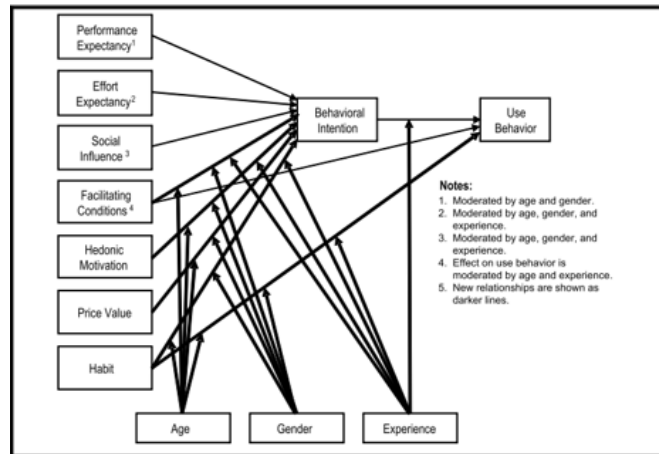as the degree by which persons are inclined to   behave in a routine like a manner [4], [12]. [1]

Figure 1: UTAUT (2)

Information and Communication Technologies (ICTs) include an assortment of beneficial implements for collecting, storing, and exchanging eHealth-related data [1]. Thus, there is proof that ICT can advance quality, security, and cost-efficiency for processing of healthcare information. The Mobile Health Application (MHAs) is considered essential for effectively employing ICTs within the healthcare community. It gives way for the amalgamation of innumerable medical orders, and procedures (e.g. electronic prescriptions, emergency information, ordering of tests, telemedicine, digital imaging, etc.), which can streamline information collection, storage, and processing, and greatly improve on the decision-making of hospitals. The use of such information is essential in daily clinical practices, and this can be improved and made more efficient using MHA

[38]. There are high hopes and expectations that patients, healthcare professionals, organizations, and the general public will receive help from the use of MHA. A review of literature proves the many benefits of MHA for patient [15].

A primary benefit cited is the improvement in "quality of care", after the patients and their health care providers could access their relevant health data. [16].

Through relevant disease management programs [17], the MHA can help and empower citizens to actively take part in the decision-making process for policies concerning health.

The MHA helps in knowledge exchange and technology transfer, as well as in the decision-making process of and amongst healthcare specialists by giving access to germane and up-to-date information of their patients.

Table 1 Shows The Overview Of The Studies Carried Out On The Adoption Of Employee Of The E Health System

Author	Description	origin	Method, simple size	Factors
[3]	investigate empirically the impact of organizational culture	Jordan	Questionnaire, 271 employees	organizational culture
[4]	Examines the user adoption of a new tablet application that aims to provide support for cognitive stimulation for the elderly	Paris	, survey , 15 senior users	show a good acceptability of the app's games that continues and improves with time
[5]	Applying an Acceptance Model to assess the adoption of M-Health Services by health related users in UAE	UAE	Survey , 144	Validated proposed hypotheses and model. PU, PEOU, TR and SE found directly influencing the intention to use M-Health services
[6]	Assessing the current state of the art in mobile health-related and clinical apps	USA, Europe,	brief survey of evaluation studies	Interactions may require substantial effort. Advice may not align with users' expectations or life activities
[7]	Developing and performing user evaluation for a mobile DSS running on iOS known as OphthalDSS	Spain	Survey, 50 physicians answered	Positively Quality, Ease of Use, Availability, Performance

[8]	Examines MHA acceptance factors in an academic-based eHealth	Us	Questionnaire, 802 faculty	Physician involvement. Adequate training, Physician autonomy. Doctor-patient relationship, Perceived ease of use, Perceived usefulness, attitude about MHA usage
[9]	To assess adoption of electronic health records (MHAs)	Us	Survey. 155 children's	Functionalities.
[10]	the effect of (MHA) acceptance		Surveyed, 72	influence on patient care, interference with other activities, influence on communication and relationships, billing process,
[11]	To examine variation in the adoption of electronic health record (MHA)	Us	Survey, 4484 physicians	size availability of MHA functionalities, (functionality use,
[12]	Pilot study of MHAS acceptance in Jordan hospitals by utaut2	Jordan	Survey 70	UTAUT
[13]	to study the role of business case analysis in healthcare organizations'	Us	Case study interviewed 43 organizational	Cost external factors, size and complexity, stage of MHA adoption, structure of health system-physician relationships, geographic location,
[14]	implementation usage behavior of Electronic Medic Records system	Jordan	7 hospitals ,700 questionnaires	Usefulness Ease ,ease of use
[15]	Health information using the Medical Evidence Gathering and Analysis through Health IT (MEGAHIT).	US	Case study Interviews with 43 participants	governance dimensions
[16]	patient safety from hospitals in six developing countries	Egypt, Jordan Morocco, Sudan Tunisia Yemen	Survey 10 group	Standers
[17]	to find out the status of electronic private healthcare information protection and safeguards	UAE	Qualitative, quantitative, 115 Chief Security	security of private and personal information
[18]	exploring the factors influencing behavior and adoption of USB-based Personal Health Records (PHR)	Taiwan	Questionnaires 1549	Higher Usage Intentions, Perceived Usefulness
[19]	A Proposed Framework to Investigate the User Acceptance of Personal Health Records in Malaysia using UTAUT2 and PMT	Malaysia	Proposal	PMT +UTAUT
[20]	literature review is used to gain knowledge about the medical and information security cultures involved	US	literature review, 95 articles	security behavior Behavioral change agents Information security behavior
[21]	Trust in stored data in MHAs acceptance of medical staff: using UTAUT2	Jordan	70	Stored data +UTAUT
[22]	Previous studies concerning the security and privacy (MHAs)		Literature review 775 articles	Security and privacy
[23]	analyze barriers perceived by different healthcare	Saudi Arabian	Case study 158 participated	Human , Financial , Laws and Policies, Organizational ,Barriers, Computers and IT Professional
[24]	MHA acceptance and utilization by physicians in Jordan	Jordan	Interviews, questionnaire 500	acceptance and utilization TAM

C. Trust and technology

Technology online became a buzzword in every aspects of our life. It is heavily used in the information sector especially in knowledge transactions.[25] It does so because information sector produces intangible goods which do not need to be physically storage or transferred. Technology online also used as intermediate tool in industrial sector. It facilitates knowledge transfer between the departments and even between the productions lines and control processes. Nowadays the new generation of people are using technology as a tool for studying and

bridging the borders. Therefore, technology is embedded with human life in almost all activities. There are many types of technology which differs according to the used information. For example, past decades, e-commerce and e-government have globally witnessed a rapid growth and received a considerable attention from the practitioners as well as the academies. The importance of technology motivates many studies in the worldwide to explore the factors that play central role in technology acceptance.

The Contribution

Trust in information (TI)
Trust in information (TI) signifies the level of trustworthiness of information acquired entrenched in online milieu. Chopra and Wallace (2003) classified TI as a significant trust found in e-environments, mainly apparent via information quality indicators, for example, accuracy, currency and coverage. The quality attributes of e-government systems information provision as utmost important in the development of trust in e-health. In addition, the quality of information is an important and meaningful determinant towards the readiness to utilise e-government services. Hence, trust in MHA system will rely mainly on the trust, which the user is able to show in the information that is accessible to them. This involves the reliability, accuracy and relevance of the information which is purpose-specific (Chopra and Wallace 2003; Barua, 2012; Papadopoulou and Nikolaidou, 2010).Dimensions

Dimensions
The dimensions of (TI) emphasise on:
  i. **Information Reliability:** To validity, completeness and reliability of information provided.

  ii. **Information Adequacy:** The adequacy of information provided which is drive-specific.
  iii. **Information Relevance:** The relevancy of information provided which is purpose-specific.
  iv. **Information Understand ability:** The comprehensibility of the information provided.
  v. **Information Accuracy:** The accuracy of information provided.
  vi. **Information Currency:** The currency of information provided.

TI plus its dimensions are enabled via suitable information architecture, which is sustained, by incorporating information as well as database systems. For information to be trusted, its consistency across the board in every government agency system is a mandatory requirement. Specifically, in targeting for the achievement of validity and reliability in the information availed, supplementary technical processes and measures accuracy and currency of information are necessary. These implicate the engagement of information quality control measures in the MHA system, which are uploaded manually, derived from other systems. The standard system assures validity, completeness and accuracy of information. in addition to this, information currency could be tracked by enforcing systems in the form of timestamps to determine the last modification made. Information adequacy, relevance and comprehensibility, which are other trust dimensions in information, are more personal and reliant on user perspectives. Furthermore, a suitable interface design and arrangement of information will establish these dimensions. Ultimately, the constant screening and evaluation on the quality of information will promote the progress in trust of information.
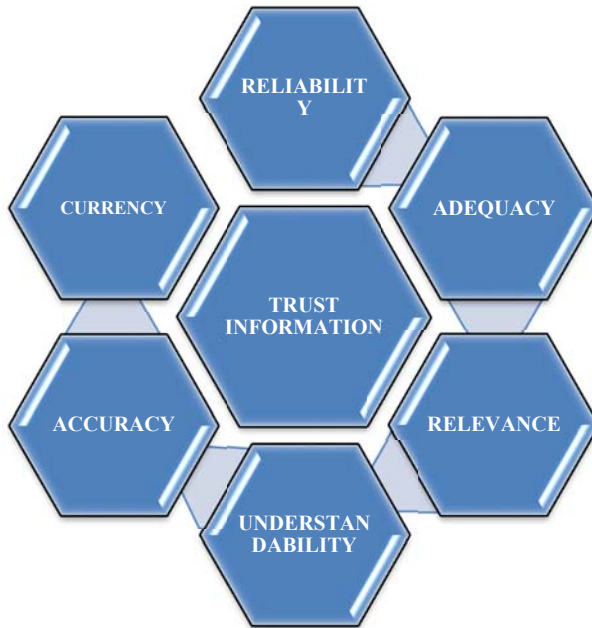
• *Figure 1: Trust Information Model*

3. RESEARCH HYPOTHESIS

MHAs and UTAUT2

The UTAUT model has been widely used for analyzing and forecasting MHA espousal and approval. This is presented in Table 1. In the case of the Jordanian Hospitals, the employees will likely find the MHA system helpful and useful. It can help them to execute the tasks of the Directorate, efficiently and effectively. Performance Expectancy, Effort Expectancy, Social Influence, Hedonic Motivation, Price Value, and Habit will have direct effects on the behavioral intention to use of MHA, by medical professionals and staff. Consequently, higher levels of intention of use will result in increased adoption of the MHAs. H1. Performance expectancy is correlated with a positive manner to utilize the MHA System. H2. Effort expectancy is likewise correlated optimistically to BI of the MHA system. H3. Similarly, positive social influence means it will be more likely that the MHA system will be adopted. H4. The same rings true for facilitating conditions. H5. Hedonic motivation is certainly linked for with the aim of using MHA system. H6. Price value is also correlated in a progressive manner to the propensity to use MHA system. H7. Likewise, Habit positively influences BI to use MHA system. H8. Trust in Information is particularly associated for using the MHA system.

4. DATA ANALYSIS AND RESULTS

This article describes the analysis conducted and displays the empirical results to examine the hypotheses of this research, using SMART-PLS 2.0 and SPSS version 18 software. This chapter comprised of nine major sub-sections.

Table 2: Summary of Sampling Size in PBH and PRH

Name of Hospital	No of Population	Physician p=91	Nurses P=348	Pharmacists P=21	Laboratory Technicians P=33	Administrative P= 62	Total Sample 555
PBH	428	*P=39 S=8	P=154 S=102	P=11 S=10	*P=15 S=12	*P=31 S=26	158
PRH	308	P*=52 S=4	P*=194 S=72	*P=10 S=8	*P=18 S=8	P=31 S=28	120
TOTAL	736	12	174	18	20	54	278

The number of sample was identify using a technique suggest by Sekaran (2003), if the population was 700 then the sample size should be a minimum of 248 as show Table 3.4.

Table 3: Size Sample for Given Population Size

N	S
400	196
500	217
600	234
700	248
800	260

420 questionnaires were distributed to professional healthcare providers. This study used the sample random method. As suggested by Sekaran (2003), the questionnaires were distributed to the participants after revising the retest and pilot test. The participants were given two months to complete the questionnaire.

According to Wong (2013), prior study proposed that a sample size of 100 to 200 is usually a good starting point in carrying out path modelling (Hoyle, 1995). 50% response rate is excellent considering that response rate of 30% is acceptable for surveys (Sekaran, 2003; Hari et al., 2010). Table 3.5 showed the response rate and usable questionnaire for this study.

Table 4: Summary of Response Rate

Number of distributed questionnaires	420
Unreturned	111
Uncompleted	31
Returned and usable questionnaires	278
Respond rate (278/420)	50%

a.   Sample Profile

Table 4 represents the frequencies and percentages of the demographical variables.

Table 5: Sample Profile

Group	Frequency	Percentage
Gender		
• Male	69	25
• Female	209	75
Age		
• < 35	77	27
• => 35 < 50	107	38
• > 50	94	34
Education level		
• Master or PhD	15	5
• Degree	138	49
• Diploma	115	41
• Secondary school or below	10	3
Type of Hospital		
• Princess Badeah	158	56
• Princess Rahmah	120	44
Function		
• Physician	12	4.
• Nurse	174	63

• Pharmacist	18	6
• Laboratory	20	7
• Administrative	54	19
Experience		
• > 3 months < 12 months	146	52
• > one year < = two years	95	34
• Above two years	37	13
Daily Use MHAs		
• less than one hour	61	22
• From one hour to four hours	112	40
• From 4 to 10 hours	83	29
• above 10 hours daily	22	7

Over 278 received questionnaires, 209 responses were received from female (75%) and 69 from male (25%) participants. Therefore, females mostly dominated the sample of this study. In specifying the age of the respondents, 27.7% of them were less than 35 years, 38.3% are between 35 to 50 years old and 34% of them were more than 50 years old.

The respondents were also asked to determine their educational level. As a result, 49.6% of them possessed degrees, 41.1% have diplomas, 5.7% have master or PhD level education and 3.5 have secondary school or below.

In specifying the type of hospital, 56% were from Princess Badeah and 44% were from Princess Rahmah. In specifying the profession of the respondents, 63.1% of them were nurses, 19.1% were administrative staff, 7.1% were laboratory technicians, 6.4% were pharmacists and 4.3% were physicians.

The respondents were also asked to determine their experience. As a result, 52.5% of them have 3 to 12 months of experience, 34% have 1 to 2 years and 13.5% have above 2 years' experience.

Finally, in specifying the Daily Use MHAs, 40.4% used between one to four hours, 29.8% used between four to 10 hours, 22% used less than one hour, and 7.8% used above 10 hours daily.

b.   Measurement Model (CFA) –SEM

The measurement model or confirmatory factor analysis (CFA) is used to find out the links between manifest or observed and latent or unobserved variables. The measurement model could therefore be said to define the manner in which latent or unobserved variables are assessed in terms of the manifest variables [29] . Operationalization of constructs is a very important step [30] in the process of ensuring accuracy. Researchers have a choice of several established scales in attempting to ensure theoretical accuracy.

However, despite the availability of a varied number of scales, researchers are often plagued by the problem of a lack of established scales and are thus driven to developing new measurement scales or greatly modifying existing scales to accommodate new context. Given all these considerations, the basis for the SEM analysis is in the selection of items to measure the constructs [30].

In the CFA models, each of the constructs was assessed for their reliability and validity. Reliability is assessed using Cronbach's alpha, construct reliability (CR) and average variance extracted (AVE), whilst for validity using construct, including convergent and discriminant.

The next sub-sections discuss the development of measurement model. The results of testing the convergent validity and discriminant validity are presented, using SMART-PLS 2.00.

c.   Convergent Validity

Table 4.9 represents the result of Cronbach's alpha and convergent validity for the measurement model.

Table 6: Results of Convergent Validity for Measurement Model

Construct	Item	Factor Loading	Average Variance Extracted (AVE)[a]	Composite Reliability (CR)[b]	Internal Reliability Cronbach Alpha
Behavioral intention to Use MHAs (BI)	BI1	0.836	0.804	0.925	0.878
	BI2	0.805			
	BI3	0.854			
Performance Expectancy (PE)	PE1	0.866	0.728	0.915	0.876
	PE2	0.843			
	PE3	0.851			
	PE4	0.819			
Effort Expectancy (EE)	EE1	0.839	0.747	0.922	0.886
	EE2	0.840			
	EE3	0.916			
	EE4	0.859			
Social Influence (SI)	SI1	0.836	0.692	0.871	0.777
	SI2	0.805			
	SI3	0.854			
Facilitating Conditions (FC)	FC1	0.866	0.714	0.909	0.866
	FC2	0.843			
	FC3	0.851			
	FC4	0.819			
Hedonic Motivation (HM)	HM1	0.890	0.767	0.908	0.848
	HM2	0.901			
	HM3	0.835			
Habit (HT)	HT1	0.806	0.618	0.866	0.794
	HT2	0.735			
	HT3	0.806			
	HT4	0.797			
Trust in information	TI1	0.806	0.702	0.792	0.862
	TI2	0.735			
	TI3	0.601			
	TI4	0.772			
	TI5	0.806			
	TI6	0.797			

[a]: Average Variance Extracted = (summation of the square of the factor loadings)/{(summation of the square of the factor loadings) + (summation of the error variances)}.

[b]: Composite reliability = (square of the summation of the factor loadings)/{(square of the summation of the factor loadings) + (square of the summation of the error variances)}.

As shown in Table, the results of assessing the standardized factor loadings of the model's items indicated that the standardized factor loadings of all items were above the cut-off 0.6 as recommended by Hair (2006), ranging from 0.667 to 0.916.

Once the unit-dimensionality of the constructs was achieved, each of the constructs was assessed for their reliability. Reliability is assessed using average variance extracted (AVE), construct reliability (CR) and Cronbach's alpha Table 4.9 shows that the <u>AVE</u>, which reflects the overall amount of variance in the indicators accounted for by the latent construct, was above the cut-off 0.5 for all constructs as suggested by Hair (2006), ranged from 0.586 to 0.832.

The composite reliability values, which depict the degree to which the construct indicators indicate the latent construct, exceeded the recommended value of 0.6 for all constructs as recommended by Bagozzi and Yi (1988), ranging from 0.866 to 0.934.

The Cronbach's alpha values, which describes the degree to which a measure is error-free, ranged from 0.777 to 0.921 which were above the threshold of 0.7 as suggested by Nunnally (1994).

Table 7: Examining Results of Hypothesized Causal Effects in Structural Model 2

Hypothesis	Path Shape	Path Coefficient	Standard Error	T-Value	P-Value	Hypothesis Result
H1	PE → BI	0.133***	0.028	5.20	0.000	Supported
H2	EE → BI	0.088**	0.025	3.55	0.001	Supported
H3	SI → BI	0.133***	0.027	5.33	0.000	Supported
H4	FC → BI	0.043	0.023	1.89	0.061	Rejected
H5	HM → BI	0.131***	0.024	5.45	0.000	Supported
H6	HT → BI	0.125***	0.027	4.69	0.000	Supported
H7	TI → BI	0.138***	0.025	5.74	0.000	Supported

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

As shown in Table 4.14 seven paths from Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), Hedonic Motivation (HM), Habit (HT), Trust in information (TS) on Behavioral Intention to Use MHAs (BI) were statistically significant as their p-values were all below the standard significance level of 0.05. Thus, the hypotheses H1, H2, H3, H5, H6, and H7 were supported. Conversely, the effect of Facilitating Conditions (FC) on Behavioral Intention to Use MHAs (BI) was not found as statistically significant by having p-value above the standardized significance level of 0.05. Thus, the hypothesis H1.d was rejected.

Model Validation

To validate the model from the in-depth study, structured interviews were conducted with three experts of other medical staff with whom the researcher worked. The medical specialties of these staff are in high position in hospital management as follow: two experts work in (PBH) princess Badeah hospital and one expert work in princess Rahmah hospital (PRH). The researcher tried to examine the current situation of healthcare in Jordan hospitals and how to get a healthier Jordan, the main focus of the interviews was two-folds:

☐ To explore the current situation of acceptance electronic health record system in Jordan.

☐ What are the factors influencing medical staff adoption of (MHAS) in Jordan hospitals?

All the interview sessions were audio-recorded and subsequently transcribed. All the interviews were conducted in both hospitals, each interview took 15-20 minutes. The methods used an open-ended semi-structured interview by asking similar structured interview questions to all the interviewees such as current sharing data methods, types of data and exchange, their perceived motivations and barriers of data sharing (MHAs), and lastly interviewees'

demographic information and work environments. An example of the interview questions was: "What motivates medical staff (including you) in your field to trust their data?" During the interviews, the participants were asked to answer the questions based on not only their own experience but also their observations in their research disciplines in

5.   FINAL RESEARCH MODEL

*p< 0.05 , **p< 0.01, ***p< 0.001
Dotted lines denote insignificant impact
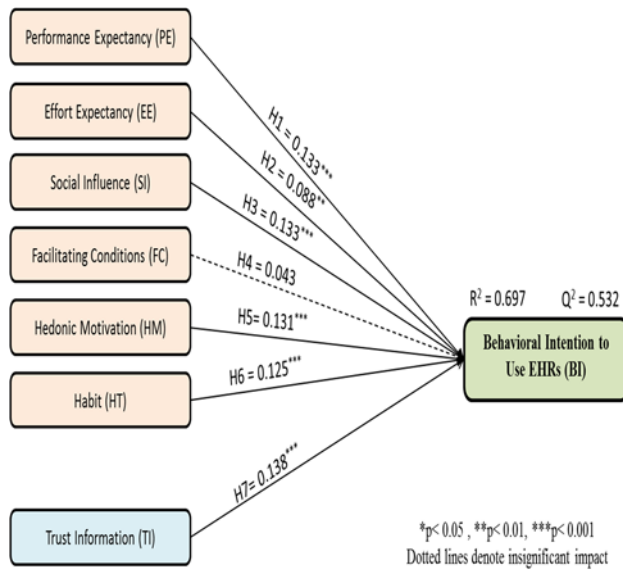
6.   CONCLUSION

The current study attempted to explore the factors influence the MHAs acceptance in Jordanian hospitals government and the link between trust in information, and Behavioral Intention to use MHAs in Jordanian hospitals and thus it opened the door for the possibility of more research. The most significant contribution of the present study is that to the UTAUT2 theoretical knowledge.

The study's model is an extension of the UTAUT2 model comprising of external factors and behavioral Intention to use MHAs. The findings are expected to improve the theoretical knowledge on the topic particularly its relation to UTAUT2 and the application in the Jordanian health domain. The study also improved the classic UTAUT2 by introducing Trust in information Factor and behavioral Intention to use based on a social perspective. The present study contributed to the literature concerning health informatics and particularly to the healthcare professional model of MHAs acceptance in the context of Jordanian government hospitals. In addition, the study also

contributed to the Jordanian Ministry of Health (MOH) for its invaluable evaluation of the healthcare acceptance of MHAs in Jordanian hospitals or for that matter, in which EMRs use has been mandated. The research outcome can be utilized to improve the existing MHAs and these can be used in the evaluation, utilization, and identification of factors influencing MHAs acceptance in Jordanian public hospitals.

7.   SUMMARY

Review of this chapter presented by various researchers' dedication to explore EHRs use from the user's point of view. It also revealed the gap that existed in studies dedicated to the EHRs acceptance impact in the Jordanian context. Accordingly, a detailed review of the existing literature review on the suitability of UTAUT to be used and eighteen hypotheses were devised in an attempt to answer the research questions. The Individual Context: Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Hedonic Motivation and Habit, Trust information system. The purpose of this research is

to examine the factors of healthcare professionals' acceptance of (MHAs) in Jordan. In addition, this stage involved the determination of the research methodology consisting of procedures, processes and guidelines compounding the type of research appropriateness, and items measurement were tested followed by re-testing and pilot testing, evaluation of content, face validity, and data handling.

8. LIMITATIONS OF THE STUDY

The present study focused only on one healthcare system and considered the results as generalizable to a certain number of populations where the sample was taken from. Therefore, this may not be an accurate depiction of attitudes. In addition, the geographic division of Jordan may also affect (MHAs) perceptions as some individuals coming from different geographic locations were expected to display different attitudes. Another limitation of the study was the use of a generic survey in the collection of data which is useful for collecting quantitative data but they do not facilitate for an in-depth study and inquiry into the given issue.

Moreover, the small sample size was also a limitation that owed itself to a small number of individuals' willingness to participate. Another limitation of the present study was the study of only those factors that affect the implementation of (MHAs). Based on this issue, future research can be attempted to find out the influence of acceptance.

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APPENDIX:

	Item	Scale				
	Performance Expectancy PE1	1	2	3	4	5
PE1	I find MHAs useful in my daily life					
PE2	Using MHAs increases my chances of achieving things that are important to me. (dropped)					
PE3	Using MHAs helps me accomplish things more quickly.					
PE4	Using MHAs increases my productivity.					
	Effort Expectancy EE					
EE1	Learning how to use MHAs is easy for me.					
EE2	My interaction with MHAs is clear and understandable					
EE3	I find MHAs easy to use					
EE4	It is easy for me to become skillful at using mobile Internet.					
	Social Influence SI					
SI1	People who are important to me think that I should use mobile Internet					
SI2	People who influence my behavior think that I should use mobile Internet.					
SI3	People whose opinions that I value prefer that I use mobile Internet.					
	Facilitating Conditions					
FC1	I have the resources necessary to use mobile Internet.					
FC2	I have the knowledge necessary to use mobile Internet					
FC3	Mobile Internet is compatible with other technologies I use.					
FC4	I can get help from others when I have difficulties using mobile Internet.					
	Hedonic Motivation					
HM1	Using MHAs is fun					
HM2	Using MHAs is enjoyable					
HM3	Using MHAs is very entertaining					

	Habit					
HT1	The use of MHAs has become a habit for me.					
HT2	I am addicted to using mobile Internet. HT3.					
HT3	I must use mobile Internet					
HT4	Using MHAs has become natural to me. (dropped)					
	Behavioral Intention					
BI1	I intend to continue using MHAs in the future					
BI2	I will always try to use MHAs in my daily life.					
BI3	I plan to continue to use MHAs frequently					
	Use behavior					
U1	The use of electronic health records usually for me					
U2	I'm addicted to the use of electronic health records system					
U3	Should the use of electronic medical records system.					
U4	Use the system became normal for me.					
	Trust information					
TI1	MHAs ensures that the data collected will be solely used for the intended purpose					
TI2	MHAs ensures that stored data are protected from unauthorized manipulation/alteration					
TI3	MHAs provides information which is valid and complete so as to be reliable					
TI4	MHAs provide adequate information for the purpose requested					
TI5	MHAs provide information which is relevant to the purpose requested					
TI6	MHAs provides The provision of information which is understandable					
TI7	MHAs provides an accurate information					
TI8	MHAs ensures that data are not collected, stored and shared without the user consent					