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**Technology Acceptance Models to
Improve Adoption of Health Information
Systems****A B S T R A C T**

Technology acceptance model (TAM) used to enhance understanding of technology acceptance in the workplace as healthcare environment. The use of technology in the healthcare environment improves healthcare outcomes, control the healthcare data, improve collaboration and skills among healthcare staff and reduce organizational expenses. Recent literature studies done indicated lack of adoption of technology as the health information systems (HISs), this be affect on collaboration among healthcare staff this in turn affect on healthcare outcomes and medical research findings. This research attempts to address the aforementioned issues by applying the extended TAM based on relevant models. This research identifies success factors influencing the adoption of HISs in healthcare environment. This research employed the exploratory qualitative research method to collections the required data. Results of this study shows that factors such as data confidentiality "security and privacy" becoming more important in addition to current factors such as perceived usefulness, ease of use, quality" system and information". Beside to, privacy factor have significantly affect the intent to use and the adoption of HISs by healthcare staff.

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Introduction

The Information and Communication Technology (ICT) in healthcare sector improve efficiency healthcare outcomes [1]. In this context, the recent studies shows the ICT in healthcare is increasing the success of these technologies depends on the acceptance of its users [2]. Health information systems (HISs) one of the ICT applications in healthcare sector, which help, ensure that patients will immediately receive appropriate treatment. According to [3]. The use of information systems

(IS) in the healthcare sector is widely accepted, particularly in hospitals environment, to improve the quality of services being provided, healthcare outcomes, collaboration, and to minimize organizational expenses [4]. TAM acceptance model (Fred D Davis (1989)), which has been applied and empirically tested over a broad spectrum of ICT applications, is one of the most well recognized theoretical models in healthcare sector ([5]. Recent studies have shows the evidence

that TAM is a good predictor of the behavioral intent to accept technology in the healthcare sector [6]. ICT has the potential to affect almost every aspect of the health sector. Information management and communication processes are backbone in healthcare sector, and are facilitated or limited by available ICT [7]. HISs have gradually replaced traditional hospital procedures [8]. A number of studies have proposed various frameworks for developing trustworthy IS and information technology (IT) solutions for hospitals. In this context, crucial technical obstacles are imperceptibly eliminated and the emerging question is whether people will be willing to use these new technological achievements [9]. Which will eventually improve online medical collaboration activities but may raise privacy concerns among individuals [10,11].

An improved understanding of how people face the possibility of using (IS) is therefore necessary in developing new implementation methods. The proposed methods must identify the attitudes of the users toward a system, thereby helping developers improve their systems and maximize possible levels of user acceptance. To date, technology acceptance and online transaction research is considered as a mature field in IS research [12]. However, despite the large volume of research in this area, and although the TAM is considered as a well-recognized model in the field of IS [13]. systematic research within the context of health care remains lacking, thus indicating a significant gap of knowledge in HIS. Therefore, extend TAM and gaining empirical evidence to support HISs adoption within health organizations by conducting more replication studies is necessary to gain confidence and increase acceptance of the TAM as a suitable theory in health care [14]. Research on online applications and sharing has been described as one of the most mature areas. However, this area has limited values in developing an understanding of how initial predicting factors affect actual online applications because most studies focused on developing models concentrating on the two end points of online applications relationships, i.e., the initial independent and dependent variables. Very few models provide precise frameworks for defining mediating specific mechanisms through which initial factors influence actual online transactions. Studies on adopting HISs have focused on the following key reasons, thus making medical staff members hesitant in practicing online medical collaboration activities: (1) characteristics of the IT

used (2) characteristics of output quality (information, services, systems) [15]. And (3) privacy concerns of individuals [16.]. The first reason considers that consumers have to be convinced that IT is useful and easy to use. The TAM was developed by arguing that the intent to use IT depends on the perceived usefulness (PU) and perceived ease-of-use (PEOU) of IT The second reason considers that success is the major determinant in all transactions, and trust indicates the quality of information, services, and systems [17]. The third reason refers to the privacy concerns of individuals, which make them hesitant to engage in online transactions that are, providing personal information online, such as date of birth, social security number, identity card number, and credit card information. Hence, models related to the willingness of individuals to provide personal information during Internet transactions have been developed [18].

The objectives of the present research are as follows. The first is to examine the applicability and effectiveness of the revised TAM by Davis [19].

For the adoption and success of HIS in the health-care sector, in general, and within the Cancer Treatment Institute (CTI)–Egypt, in particular. The second objective is to identify factors affecting the intent of using HIS in health institutions, as well as their acceptance and adoption within CTI–Egypt. The third objective is to identify factors obstructing cooperation among medical staff members (physicians, researchers) with regard to sharing information for health research within CTI–Egypt. To achieve these goals, a model has been developed by integrating the TAM and D&M. An attempt has been conducted to identify new factors in accepting the aforementioned technology by analyzing the integrated model and by conducting an in-depth data analysis based on semi-structured interviews among the medical staff members in CTI–Egypt and relevant literature review. In the following sections, we briefly explain the TAM and HISs, present the salient aspects of the methodology, show and discuss the results, and summarize key findings.

Theoretical Background

The user opinions and intent to adopt IT/IS, and the rate of diffusion technology within and across organizations, constitute two important focus points in IS research. [19]. Using IT/IS at work may increase employee productivity and improve

individual and organizational performances. System usage, therefore, is an important dimension for measuring IS success. Adopting HIS in health-care organizations will:

1. Enhance health-care quality and help manage medical data more systematically. Cooperative HISs can also improve patient treatment and provide up-to-date information for members, thus enhancing their decisions from the perspective of patient treatment [20].
2. Enable health-care organizations to enhance their disease control and prevention programs, and to plan strategies with other health-care organizations and research institutes, apart from catalyzing collaboration in health-care research.

Information systems research often focuses on systems design and [21]. But not on how end

users, react to the implemented IS. Of course, health IT “success” involves more than simply designing or purchasing a reasonably functional technology ([22]. In sum, HISs in healthcare sector needed to acceptance by end users in order to success. In other words, “whether an information system is ‘successful’ or not is decided on the workflow...” [23]. Numerous cases of under usage, resistance, working around and overriding, sabotage, and even abandonment serve as evidence for this claim [24]. is a well-recognized theory of technology acceptance in IS research [25]. In particular, the TAM specifies that two factors, namely, PEOU and PU, determine the intent to use a new IT, as shown in Figure 1.

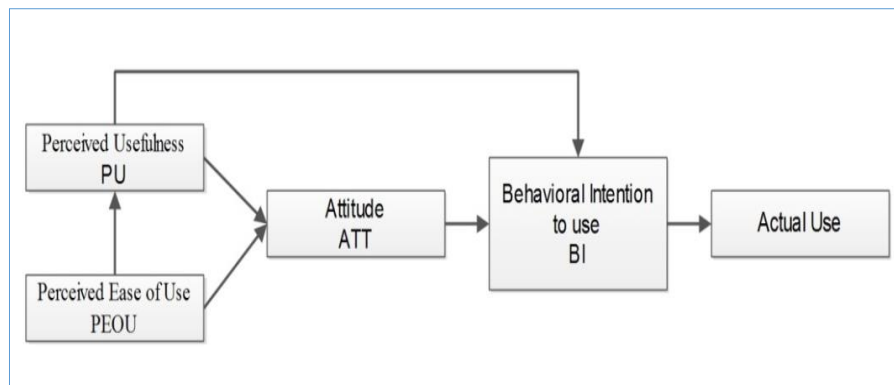


Fig. 1. The technology acceptance model (TAM; 1989) (Fred D Davis, 1989)

TAM have more version and updated. For example, an update called the TAM2 [26]. Removed the “attitude” (ATT) component of the model, which originally mediated several influences of PU and PEOU. The TAM2 also added a variable for capturing social influence, which compels end users to positively evaluate and accept IT, called subjective norm (SN). Recently, an impressive effort to unify IT acceptance literature resulted in the development of unified theory of acceptance and use of technology (UTAUT), a theory with an apparent resemblance to the TAM ([27]. UTAUT incorporates PU into a performance expectancy construct, PEOU into an effort expectancy construct, and SN into social influence [28]. The TAM covers a theory about factors that may influence the intent of an individual user to use technology. However, to complete a transaction in the Internet, the individual must provide private information. “Privacy and the requirement to submit personal data are primary factors that discourage users from online application,” [29]. as

well as collaborative medical data for research based on Web applications [30].

The decision of an individual to provide private information may be influenced by other factors such as “collection: concern that extensive amounts of personally identifiable data are being collected and stored in databases,” “unauthorized secondary use (internal): concern that information is collected from individuals for one purpose, but is used for another (secondary purpose; internally within a single organization) without authorization,” “unauthorized secondary use (external): concern that information is collected for one purpose, but is used for another (secondary) purpose after disclosure to an external party (not the collecting organization),” “improper access”: concern that data on individuals are readily available to people not properly authorized to view or work with the data,” and “errors: concern that protections against deliberate and accidental errors in personal data are inadequate” Accordingly, developed the concern for information

privacy model, wherein collection, improper access, secondary use, and errors are the drivers of individuals in the information privacy context. Privacy concerns particularly refer to the reluctance in releasing personal information [31]. Although different, security concerns are also related to privacy concerns. [32]. Proposed a model for the success of IS, and later published a modified D&M

IS success model (2003) as a framework for conceptualizing and operationalizing IS success. These studies have provided useful insights into the cognitive, emotional, affective, and behavioral reactions of individuals to technology, and into external factors influencing the development of these reactions. Figure 2 presents the D&M framework (2003).

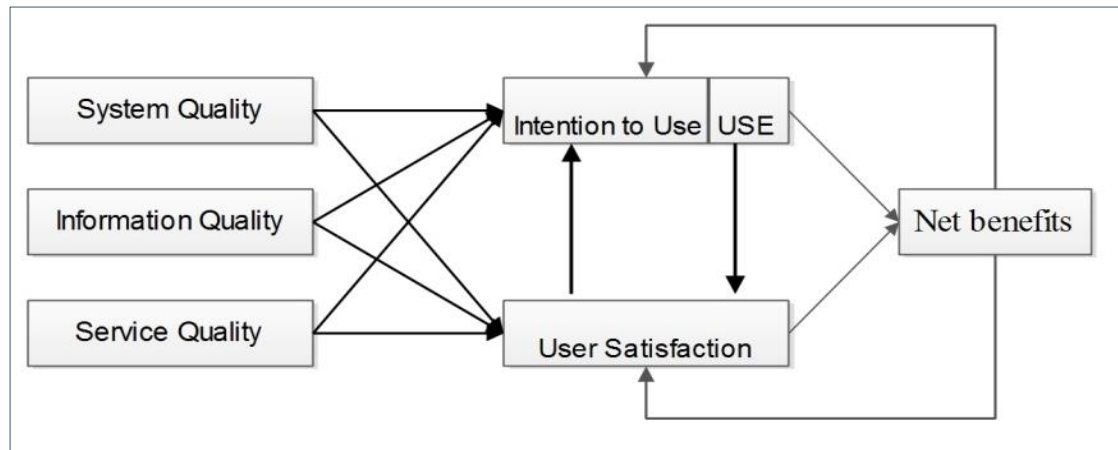


Fig. 2. The D&M IS success model (2003)

IT, particularly the Internet, has a significant effect on online operations. IS researchers have turned their attention to developing, testing, and applying e-commerce success measures [34,35]. Electronic decisions and transactions will then affect individual users, organizations, industries, and even national economies. This communication and commerce process fits well into the updated D&M IS success model. The success dimensions of these models are as follows: System quality, Usability, availability, reliability, adaptability, and response time [36]. Information quality this dimension captures Web-based system content issues. Web content should be personalized, complete, relevant, easy to understand, and secure [37]. Service quality the overall support delivered by the service provider applies whether this support is delivered by the IS department, a new organizational unit, or outsourced to an Internet service provider [38]. Net benefits this dimension is the most important success measures because it captures the balance between the positive and negative effects of e-commerce on stockholder users [39].

As mentioned earlier, despite the large volume of studies in this area, and although the TAM and D&M have been considered as well-recognized models in the field of IS (Gefen, et al., 2003), reviews of the most basic version of TAM routinely find that it accounts for 30% to 40% of IT acceptance, despite its relative simplicity (Lee, Kozar, & Larsen, 2003; Legris, Ingham, & Collette, 2003). However, systematic research within the context of health care remains lacking, thus indicating a significant gap in knowledge. Therefore, developing the TAM and gaining empirical support for it within health organizations, as well as adopting a Web-based system for improving collaboration in medical research based on privacy protection, are essential. Further replication studies are necessary. In this study, we have employed qualitative research methods to support the outcome of the previous proposal and to perceive HIS acceptance problems and requirements in.

Research Model

To better understand the links among the determinants of online collaboration, Figure 3

presents a theoretical model based on the integrated framework of the TAM and the concern for information privacy models presented earlier

The specific links between two successive variables in the individual models have been presented in the theoretical background section [40].

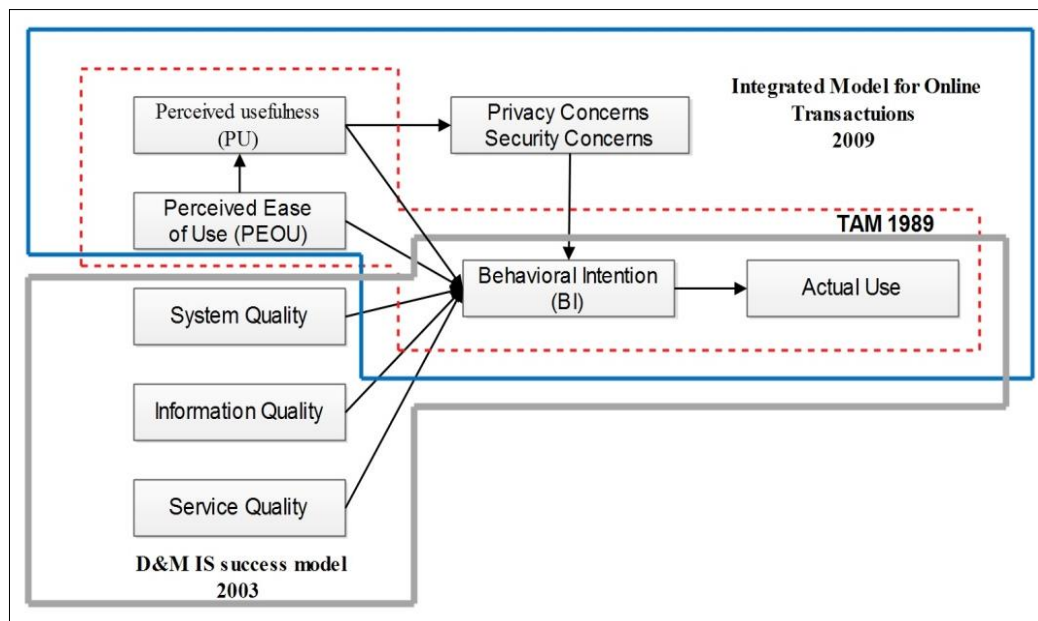


Fig. 3. The conceptual research model

The major characteristics of the proposed model are as follows:

1. Individuals intend to use IT systems and are willing to provide personal information when they have developed attitudes toward IT use [41]. The more positive these attitudes are, the more they are willing to provide information and show intent to use an IT system. This link is based on theory of reasoned action.
2. Privacy and security concerns of individuals are associated with a number of external factors. These concerns may be low with government surveillance and high with government instruction [42]. low with trust beliefs and ability to control [43] low with usefulness and ease of use of IT (the TAM approach (Fred D Davis, 1989)), and low with subjective norms [44].
3. The characteristic decisions and transactions of electronic systems will then affect individual users. System characteristics have three dimensions: system quality, information quality, and service quality. This link is based on D&M IS success model (2003) (Delone & McLean, 2003).

In the proposed model, the major serial links among constructs have been presented. However, numerous links connecting other constructs may also be available. For example, according to the

TAM, PEOU may affect perceived usefulness [45,46,47].and trust beliefs, in turn, may affect PU (Gefen, et al., 2003). Antecedents of trust beliefs may also exist, such as collection of data, unauthorized use of data, and errors in data [48]. Willingness to provide information may be associated with intent to use IT. Nevertheless, the direct or indirect influences of several constructs on other constructs through mediating constructs are not necessarily mutually exclusive but can be complementary [49]. Moreover, the direct and indirect, or mediating effects of the aforementioned links may be moderated by factors such as gender, age, education, income, culture, and experience [50].

**Research Method
Sampling Method**

This study employed the qualitative research approach. Qualitative research has gained increasing popularity in the last two decades, and is becoming widely accepted across a wide range of medical and health disciplines, including health service research, health technology assessment, nursing, and allied health sectors [51,52].

A case study has been conducted on CTI, Egypt. Case study is the most common qualitative method used in IS [53,54,56]. Observation and semi-

structured interview techniques used for collecting data.

From other perspective, cancer is a major public health problem in developing countries. According to the International Agency for Research on Cancer [55]. This research aims to improve medical collaboration through HISs based on privacy preservation (PP) through sharing of healthcare data for collaborative research. In this research, CTI-Egypt was chosen for the case study. Sample respondents were selected by snowball sampling [52]. The standard used for choosing participants and sites is "they are information rich" (Patton, 1990). Therefore, research samples included those from physicians in CTI-Egypt who use health-care IS and are familiar with the system environment, as well as medical informatics experts who can provide in-depth illustrations of obstacles that may affect collaboration among HIS. Ten specialist physicians, including the manager and heads of treatment departments of CTI-Egypt, as well as two medical informatics experts, were asked to participate in the interview after they reviewed the study proposal and approval.

Each session took approximately 1 to 2 hour for each interviewee. With the permission of the respondents, data were recorded and summarized in notes. Conducting semi-structured interviews, as mentioned earlier collected data for this study. These interviews were recorded (with the

permission of the interviewees) and transcribed afterwards. Semi-structured interviews were adopted for the physicians and medical informatics experts. To obtain reliable data, this research employed various tools, including a tape recorder, e-mail, and a member checking technique. This study also used content analysis. Data were processed using multiple methods, including transcripts, notes, and so on, and were displayed in intermediate representation forms, such as graphical models, collections of themes, and written descriptions. According to Lincoln and Guba (Lincoln & Guba, 1985), basic analysis procedures include unitization and categorization. The current research identified the meaningful section of the text by reading through the data several times. Therefore, the analysis method could be described as using the frequencies of the most used keywords in the content. The transcribed materials consisted of only seven interviews, including those from six specialist physicians and one from a medical informatics expert. The researcher selected seven interviews only because of data saturation [65]. Sampling continues until no new information emerges from the data (termed data saturation) [57]. The materials comprised 101 pages, 73,034 words, and approximately 12.30 hours of audio recording. Approval was obtained from the Research Ethics Committee of Health before any information was gathered from the participant. Table 1 shows the demographic characteristics of the respondents.

Table 1 Demographic characteristic of the respondents

		Frequency (Person)	Percent (%)
Gender	Male	5	71.4
	Female	2	28.6
Age	40-50	2	28.6
	≥51	5	71.4
Educational background	Post-graduate degrees		
	Master	1	14.3
	PhD	6	85.7
Personal	Medical	6	85.7
	Medical Informatics	1	14.3
Year of employee	less than 10 :New Employee	3	42.9
	More than 10: experienced employees	4	57.1
Experience with computers	More than 6 years	2	28.57
	Between 4 and 6	3	42.86
	Between 1 and 3	2	28.57
Perceived experience	Low	2	28.57
	Mediocre	3	42.86
	High	2	28.57

Data Analysis and Findings

Data analysis is the most difficult and most crucial aspect in qualitative research. Responses obtained through observation and interviews are combined and presented to identify the problems and requirements of HIS environment, and to examine the possibility of adapting HIS acceptance and success in such environment. Findings from the observations indicate the following:

1. *Lack of connectivity: Lack of HIS adoption in CTI-Egypt;*
2. *Lack of acceptance of IT/IS in the health-care sector;*
3. *Nature of work style: Medical staff members work independently;*
4. *Manual work system: Most jobs in CTI-Egypt depends on a paper-based system;*
5. *Lack of experience in using HIS;*
6. *Lack of IT/IS experts in CTI-Egypt; and*
7. *Decentralized and autonomous units: Lack of shared goals within health-care systems;*

As mentioned earlier, these findings are helpful in preparing the interview questions. After collecting data from the interviews through open-ended questions, the researcher reviewed the data (i.e., extensive reading and rereading of the transcripts, and repeated listening to the recorded interviews). The researcher used the coding manual for qualitative data. Figure 4 illustrates the streamlined codes to the theory model for qualitative inquiry according to (Strauss, 1987). The results were integrated, analyzed, and categorized by referring to the issue of HIS adoption and medical data management. Examining the variables among HIS acceptance and adoption, and medical data sharing had identified the factors affecting the intent of using HIS in health institutions, as well as acceptance and adoption within CTI-Egypt. The data collected from the answers of the participants on factors affecting the acceptance of HIS in the health-care sector were analyzed and grouped by the researcher into six categories as mentioned Table 2.

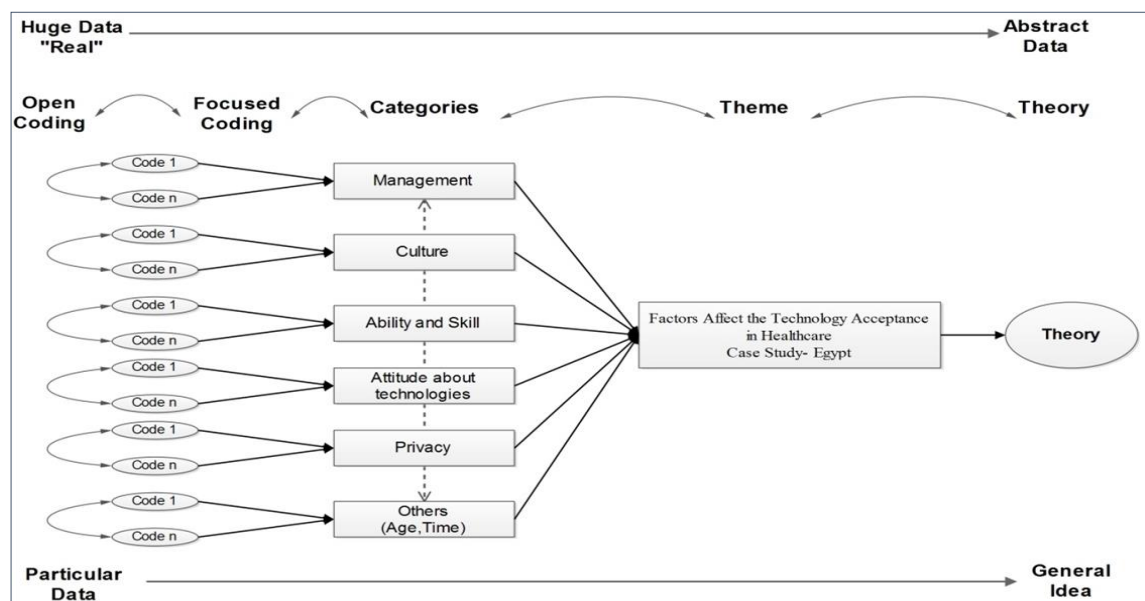


Fig. 4. A streamlined codes -to-theory model for qualitative inquiry

Figure 4 present the streamlined codes-to-theory model for qualitative inquiry. Qualitative data analysis starts from a huge amount of complex data, including mix concept. Before starting qualitative data analysis, data for analysis must be prepared, and extensive reading and rereading of the transcripts, as well as repeated listening to recorded interviews, must be ensured so that clear data ready for analysis will be obtained at the end of the cycle. The first cycle in qualitative data analysis transfers unstructured data to structured data based on coding clustering. Codes indicates a word or short phrase that symbolically assigns a summative, salient, essence-capturing, or evocative attribute for a section of language-based or visual data, as presented on the left side of Figure 4. The set of codes indicate one category, such as factor or management categories, including several codes

collected from the answers of the interviewees. The management category includes a set of codes as follows: (1) Lack of time management; (2) Lack of medical informatics experts; (3) HIS have limited activities; (4) Lack of technological proficiency; (5) Overload of tasks for each employee; (6) Most of the jobs in CTI-Egypt depends on paper-based systems; (7) Lack of training activities, thus indicating financial obstacles; and (8) Weak technological infrastructure. The manner in which cluster qualitative data encode categories was described earlier. The next cycle in qualitative data analysis involves using categories to indicate one theme or concept instead of a set of themes or factors to explain the theory. Table 2 show common factors affecting technology acceptance in health care among the participants through their answers to the interview questions.

Table 2 Issues relating to technology acceptance in healthcare sector

	Interviewees						
	1	2	3	4	5	6	7
1 Factors Affect the Technology Acceptance in Healthcare							
Poor technology expertise lead to wary to use the technology, misuse the technology activities.	x	x		x	x	x	x
Misuse of personal and official records	x	x		x	x	x	x
Refrain from recording and sharing details in HIS			x	x		x	
Untrusted parties share the data.	x	x	x		x	x	x
Lack of law or convention for the protection of medical data.		x		x	x		x
Lack of confidence in using HIS/IT.	x		x			x	
Lack protocol to protect the confidentiality and privacy when using medical data systems a violation of personal data.	x		x	x	x	x	x
Lack of rules in use and share medical data.	x	x		x		x	x
Ensure confidentiality and privacy of data and staff.	x	x	x		x	x	
The use of medical data and personal data available through HISs for non-scientific purposes is most important issues of data privacy.	x		x	x	x	x	x
2 Description of the factor categories affecting IT/IS adoption in the health-care sector							
Management	x	x	x	x	x	x	x
Culture	x	x	x	x	x	x	x
Ability and Skill	x	x	x	x	x	x	x
Attitude about technologies				x		x	
Sociodemographic factors(age, time)		x		x			
Privacy	x	x	x	x	x	x	x
3 Obstructions that Affect the Collaborative among hospital Medical Staff							
Most work in CTI - Egypt based on paper based system	x		x	x		x	
Lack depend HISs at work (more system to manage the medical services) lead to complex work		x	x			x	x
The medical staff (physicians ,researchers) work independently in CTI - Egypt , due to :							
1- Lack knowledge of technology in healthcare sector		x	x			x	x
2- No connection among HISs (every department have special system)	x			x	x		x
3-No system available to manage the CTI – departments activities	x	x	x		x	x	x
4-No system available to control and manage collaborative among medical staff		x		x	x		x
5-Lack of time for medical staff to work based on HISs	x	x		x	x	x	x
Systems and computers in CTI - Egypt not connected to the internet	x		x		x		x
Medical research unit not available in CTI as the independent unit	x	x		x	x	x	
No System available to provide medical data for the research		x	x				x
Medical data for the graduate students as hardcopy	x		x		x	x	x
Raw medical data not available because the privacy and security issues	x	x	x		x	x	
Lack of accuracy in the medical data	x		x			x	x
Lack of rules in use and share of medical data	x	x	x	x		x	
Lack of a system to ensure the confidentiality and privacy of patient-level data and medical data used	x	x	x	x	x	x	x

To identify factors that improve collaboration among medical staff members through HIS with regard to sharing of health information for research within CTI-Egypt, data were collected for analysis and integrated, the researcher indicate to these factors as information privacy and security becoming more important in addition to current factors such as perceived usefulness, perceived ease of use, system quality, information quality, and

service quality, the privacy element of data also significantly affect the intent to use and the adoption of HIS by medical staff members.

Data obtained through observation and interviews were combined and the proposed integrated model was presented for online medical collaboration with regard to medical research by sharing data based on the TAM2 and D&M, as shown in Fig 5.

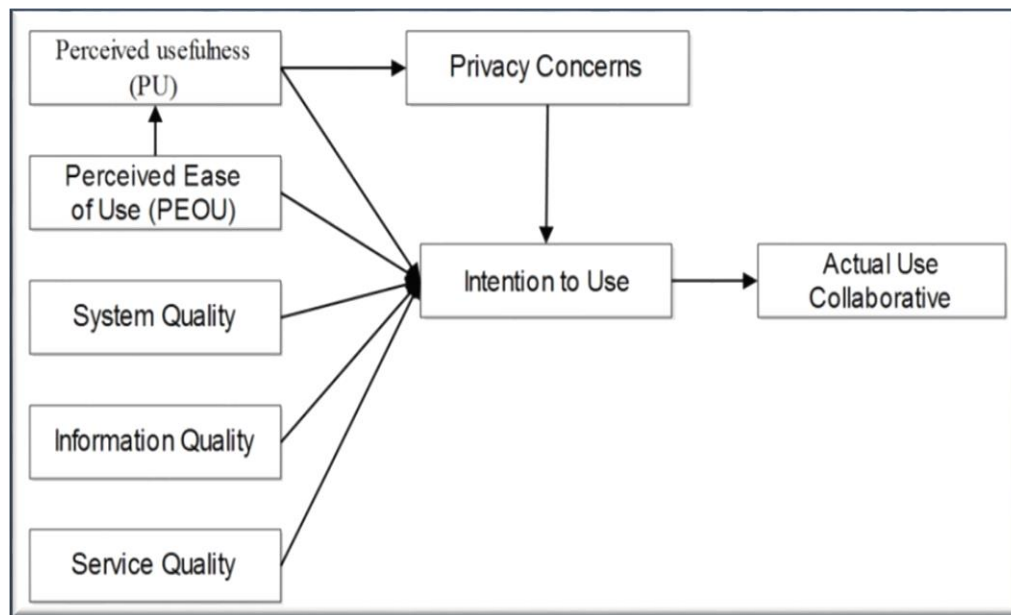


Fig. 5. The online collaborative model: Sharing medical data for research through HIS.

Furthermore, the direct links between two serially engaged successive constructs in the proposed model are presented. However, direct links may exist between constructs that are not close enough. The intent to use IT is directly affected by PU and PEOU, and may be indirectly affected by the mediating constructs of privacy concerns. Nevertheless, the direct or indirect effects of several constructs on other constructs through mediating constructs are not necessarily mutually exclusive, but can be complementary. Moreover, the direct, indirect, or mediating effects of the aforementioned links may be moderated by various factors, such as gender, age, education, income, culture, and experience. The proposed model presents the theoretical frameworks used for explaining online medical collaborative relationship, but does not provide a specific structure for defining precise mechanisms through which the initial factors influence actual collaboration. The significance of the proposed model improves online medical collaboration through HIS for sharing data based on privacy concern. Such concern is an important area with regard to sharing data (patient and medical staff data) for secondary use, such as in medical research, to improve the findings of studies, particularly in the medical sector.

Discussion

The current study have attempted to better understand how the TAM can be developed in collaborative HIS to improve HIS acceptance and adoption in the health-care sector. This study aims to identify HIS problems, requirements, and factors affecting the adoption and acceptance of technology for enhancing services in health-care centers based on collaborative medical activities. However, although research on online transactions has been described as one of the most mature areas in IS literature, it has limited values in developing an understanding of how initial predicting factors affect actual online transactions because most studies have focused on developing models concentrated on the two end points of online transaction relationship, i.e., the initial independent and dependent variables. Very few models provide precise frameworks for defining mediating specific mechanisms through which initial factors influence actual online transactions. The proposed model improves online medical collaboration through HISs for sharing data based on privacy concerns. Privacy concern is an important area with regard to sharing data (patient and medical staff data) for secondary use, such as in medical research, to improve the findings of studies, particularly in the medical sector. The proposed model was developed based on the TAM and D&M IS success model, in addition to mediating factors, such as privacy concerns, security concerns, and risk perception. This study highlights privacy

concerns with regard to online medical collaboration for medical data sharing for research. The results indicate that various factors, such as PU, PEOU, system quality, information quality, and service quality, in addition to privacy concerns, have a significant effect on the intent to use and adopt HISs.

This study, however, has several limitations. First, the sample size is small because the researcher only targeted a particular subject group (the personnel of CTI-Egypt) that directly interacts with HISs (the manager and heads of departments). Second, emphasis was mainly placed on IS used for administrating hospital activities, particularly collaborative medical research. Thus, caution must be practiced when generalizing the findings with other technologies and professional groups. Finally, the differences in the results of this research compared with other similar studies could be attributed to the composition of the sample, which consisted of individuals who effectively perform tasks through IT/IS systems. Therefore, an argument could be made that measuring the intent to use under such conditions is relatively strange. Surprisingly, although specific IT/IS applications have been adopted by CTI-Egypt staff members; they prefer not to use these applications most of the time and will rather perform their tasks manually. This reason probably makes it more interesting to study factors that affect and shape the behavior of CTI-Egypt staff members and their intent to use IT/IS systems. The main advantage of the approach used in this study is that it can provide pieces of evidence on what causes individuals to ignore these systems. As such, it can provide the management with useful insights into which policies should be followed, and not only convince the current members of the staff to use these systems (or use them more frequently/effectively), but also to establish and maintain appropriate conditions to encourage future users to use IT/IS applications.

Summary

In reviewing the theoretical perspectives applied to the field of IS with regard to online transactions, such as online medical collaboration, most perspectives dealt primarily with applications of the TAM (1989), the extended D&M IS success model (2003), and other related models. Although these applications exhibit several values in clarifying a number of determinants of online transactions, they have limited values in aiding the understanding of how initial predicting factors affect actual online transactions. Consequently, these applications do not provide a precise framework for defining specific mechanisms through which initial predicting factors affect actual online transactions. The effect of mediating factors on the intent to use in this area needs further studies to explain the relationships

between theory components and the right direction. The scope of the research area highlighting user behavior toward online transactions encompasses numerous research disciplines. Therefore, an attempt to adopt a holistic treatment through a unifying model will be a challenging task. Nevertheless, a unifying model will evidently add value to both IS researchers and practitioners because it will help the former understand the problem area and will simultaneously be a valuable tool for the latter. Validating the proposed model by empirical means is part of an ongoing research, and will also be included in the future work of the researcher. Several issues and challenges identified in this study need to be addressed to complete the definition of model. These issues include designing appropriate research instruments, establishing the exact number of mediating variables, and validating their relationships.

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