

Trends of Factors and Theories in Health Information Systems Acceptance: 2002 – 2014 Review

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INTRODUCTION

Today, Health information systems (HIS) constitute a crucial part of medical and health studies in the literature, and HIS studies have been expanded by the development of health technologies. Providing healthcare services on the mobile platform is also boosted the technological developments by increasing reachability, accessibility and ability to perform tasks on decision making/ diagnostic processes (Nah & Siau, 2005; Sarker, 2003). The term HIS has been interchangeably used with the terms of “e-health” and “health informatics” in the literature, however, they had slight differences by the means of definition. HIS defined as an interdisciplinary field which involve information systems, computer science and health services (Eysenbach & Diepgen, 2001). On the other side, Mitchell (1999) defined health informatics as a supporting healthcare practice which is the combination of electronic and digital processes.

At the time of early developments in health technologies in health and medicine, it was started with improvement in utilities and tools being used in health services. In this context, Reichertz (2006) explained technological developments in hospitals emphasizing the social side of technology. However, it was noticed that technology is required to be learned as Haux (2006) outlined. Haux (2006) elaborated Reichertz’s study by increasing use and evaluation of health technologies and emphasized on the need of education and research on HIS. Furthermore, Berg (2001) argued the success in health information systems not limited to specific criteria but depended on implementation itself with inclusion of all parameters as systems and users. On the other side, altruism, individual commitment and motivation were identified as contributing attributes for technology acceptance of health technologies (L. Schaper & Pervan, 2007). Here, it is a fact that Information and Communication Technologies (ICT) provides important assistance to health providers in terms of providing health services. For instance, non-communicable health diseases constituted an important part of health services due to their high degree of fatal results (WHO, 2008). In this context, cardiovascular diseases were estimated to cause death of 17.3 million people in 2008 (WHO, 2011). However, it was estimated that HIS stands as one of the key elements to reduce the risk of fatal results.

The literature presents plenty of studies in the field of HIS. One study reported that HIS have been assisted to healthcare providers for diagnostic processes which increased effectiveness (Piette, Blaya, Sanchis, Box, & Arbor, 2011). Another study about patient safety stated that information technologies in cardiac health services have been assisted physicians in diagnoses and vitally reduced risks in patient security (Daudelin, Kwong, & Beshansky, 2005). Here, it can be deducted that the success in HIS is vitally significant, but here, implementing HIS successfully emerges as another important question.

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HIS stands as a part of Information Systems (IS) and Information Communication Technology (ICT) domain. Thus, it suffers from several drawbacks of IS applications. Studies demonstrated that around 40% of information technology developments in various industries have been concluded as failures or labeled as inconclusive (Kaplan & Shaw, 2004; Kijisanayotin, Pannarunothai, & Speedie, 2009). Since the implementation of information systems and technologies mostly remained confidential at corporations, there is no specific number of information system implementations that succeeded or failed, however, independent studies demonstrated the big picture. It was outlined that around 20-25% of IS projects in industrialized (developing and developed) countries failed, and an additional %40 of projects remained as partially failed (Heeks, 2002, Peppart et al, 2014). Littlejohns et al (2003) stated the reasons of failure as the result of lack in understandings in a new system and its underestimation due to the complexity of the system. In another study, Lorenzi and Riley (2003) explained the reasons for IS failures as a result of human behavior in underestimation of complexity, ineffective communication, organizational, technological and leadership problems. Considering the health domain, it was outlined that, within the context of healthcare system, EPR system included complex interaction of technical and organizational factors (Jones, 2003, Galliers & Leidner, 2014). On the other side, Taylor and Todd (1995) emphasized on prior use in information technology may resulted with different attitudes towards the system, such as HIS users. As is seen here, the IS applications presented that technology use may show variance among different type of users. Thus, here the moral of the story is not to underestimate human factor in the equation. Studies in ICT and HIS domains demonstrated that understanding human factors is a must as well as developing a system itself. Hence, the socio-technical side of information technology is essential part of success in information technologies (M Berg, Aarts, & Van Der Lei, 2003). In this context, the studies presented the need of involvement human side into the equation of technology use. Regarding to that, there were number of studies conducted to assess health information system use by end users, who were mostly patients, physicians and health professionals. Prominent behavioral theories, such as Technology Acceptance Model (TAM), Innovation Diffusion Theory (IDT), Theory of Planned Behavior (TPB) and Unified Theory of Acceptance and Use of Technology (UTAUT) constitute the majority of the employed theories for acceptance studies.

In the literature, the studies regarding to health professionals' acceptance of particular technologies expands consistently. In this context, this research revealed that HIS acceptance researches have been increasing rapidly for the last 18 years (Figure 1). Since the human factor is important aspect of technology use, here, the question is what are the trends of factors affecting the acceptance of Health Information Systems by health professionals? The answer of this question will reveal the changes in user needs over the time.

In this study, the changes in influencing factors in acceptance of HIS by health professionals are being investigated by following a research procedure, and the implications are demonstrated. The results of this study would assist decision makers and researchers to learn about timely changes in health professionals attitudes towards HIS, and it would contribute to literature.

LITERATURE OF TECHNOLOGY ACCEPTANCE

For a long time, human attitude towards technologies have been assessed and studied in psychology domain (Bandura, 1977; M Fishbein & Ajzen, 1975). But technology acceptance of users and its assessment has gained popularity in the beginning of 1990. By the development of TAM after TRA and TPB, the studies in acceptance field increased dramatically (Ajzen, 1991; Davis, 1989; Venkatesh &

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