

A Primer to the Learning Readiness Assessment to Raise the Sharing of e-Health Knowledge amongst Libyan Nurses

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Abstract—The usage of e-health facilities is seen to be the first priority by the Libyan government. As such this paper focuses on how the key factors or elements of working size in terms of technological availability, structural environment, and other competence-related matters may affect nurses' sharing of knowledge in e-health. Hence, this paper investigates learning readiness assessment to raise e-health for Libyan regional hospitals by using e-health services in nursing education.

Keywords—Libyan nurses, e-Learning readiness, e-Health.

I. INTRODUCTION

CURRENTLY learning in the field of health promotion, wellness, and disease is recognized as an important component of nursing practice. In the past, facilities for healthcare, for example telehealth, and e-Health have been recognized as a secondary necessity [1]. On the other hand, the present factors affecting the development of the healthcare field are becoming an efficient element, leading the economy. Consequently, looking at the level of learning readiness in various healthcare sectors is necessary [2]. E-Health has been identified as an enabler of health care and health resources by using information communication technology (ICT) to provide better learning to learners. Furthermore, other scholars have defined the e-Health implication about multimedia components (e.g., software allowing nurses to process a certain task, for instance Adobe tools), health portals, virtual reality, digital imaging, other systems for monitoring records, and chunked information-based surgery.

Meanwhile the area of medical informatics is also emerging; this refers to the delivery of health services, other related technologies, and information using the internet. In a wider sense, this term differentiates not only the technical development, but also a new method of working: a commitment to network, and a motivation, thinking globally, to improve health care regionally, and locally [3].

In addition, there are a few challenges in considering e-Health facilities in healthcare sectors. To be successful in the adoption of any healthcare depends mainly on the structural readiness of institutions for managing different healthcare facilities [4]. This is particularly true in developing countries like Libya.

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The Libyan health ministry has shown concern and much interest for the usage of e-Health services. This includes the main factors, and healthcare services that may affect the working capability in terms of the technological availability, structural environment, and another competence-related issue.

Furthermore, the Libyan healthcare sector has no electronic learning that emerged from it; therefore, learning happens through programs to teach nurses with the best practice the Libyan healthcare sector has to offer. The ministry of healthcare in Libya gets involved by delivering nurse education through a medical team of professional nurses.

Reference [5] stated that the learning criteria for nursing care in Libya is insufficient due to the poor quality of nurse education, generally coming without technological support (for instance troubleshooting, internet monitoring and software installation). They also clarified how nursing practices depend on foreign staff; in addition, they are not Libyan citizens. As such, many healthcare sectors in Libya are ready to use the internet as a substitute learning instrument to support nurse learning in these programs.

The Libyan healthcare sector tries to make an effort to identify and disseminate innovative electronic learning practices. Therefore, the usage of e-Health may have the potential and prospect to promote nurse engagement [6].

II. BACKGROUND OF THE STUDY

The main possibility of using e-Health application in the healthcare sectors is to allow nurses' engagement with several technological tools, containing internet-enabled applications to determine illnesses that would raise nurses' awareness around the current status of self-care techniques [7]. Even though there are many advantages of e-Health, there are a number of barriers that nurses face: lack of sharing knowledge, lack of adequate resources, and support while conducting learning programs. These difficulties can possibly impede learning [8]. This can possibly be seen in various educational factions as preventing the nurse's capability to deliver the necessary services. Moreover, difficulties to learning can exist when various learning frameworks, developed for another learning purpose, are used, these can negatively affect a nurse's capability to join and process information. They addressed the key environmental, organizational, educational, and clientele factors influencing the educating of others, which contains a lack of time to learn. This challenges nurses' capability to process learning efficiently: patients are usually admitting for a short period of time, influencing nurses' engagement with

patients [9]. The current strategy of using books to guide and prepare nurses in the learning field are no longer realistic, and do not help the nurses to necessarily use new technology in their work [10]. Nurses have to know how to adapt to effective and expeditious approaches in their career. To do this, it is essential to sufficiently assess nurses and adapt the suitable instructional ways and tools at their disposal, for instance e-Health services. After reviewing many studies we have concluded that many practicing nurses think that the principles of learning are ambiguous. Several nurses admit they do not feel confident and competent to increase their working skills throughout the learning process. Therefore, there may be a lack of integrating a suitable readiness model to determine the influence of technological adoption in the health sector. On the other hand, a lack of structural elements for instance policy and human resources in different environmental settings where nurses are anticipated to learn are not always contributing to conducting the learning processes of various learning programs [11]. Usually, healthcare sectors in Libya face various challenges and obstacles toward adapting better teaching and learning facilities for learning purposes [12]. Consequently, Libyan large hospitals are determining or restructuring the level of readiness to use e-Health services as an instrument in nurses' learning in those hospitals. This may be due to the current critical situation of the Libyan health system, in which constancy has been lost among physicians, services, financials, and administration. It has been discussed for a long time to recognize e-Health services but no serious projects are implemented [13]. Based on the above-mentioned challenges and previously cited research, underlying problems related to the lack of human resources and use policy exists among nurses while performing their usual learning tasks. Such aspects have an important role in ensuring the continuity of care across settings. Besides, infrastructure problems exist, hardware and software resources, involving space, along with privacy in majority Libyan healthcare sectors. In the meantime, limitations lie in the nurses' experience in using and adapting technology to the learning environment. Thus, by assessing the learning readiness of nurses, their preparedness to engage with e-Health services, while learning in Libyan regional hospitals.

III. PROBLEM STATEMENT

As cited previously by various researchers worldwide, years spent in nurse education has failed to sufficiently prepare nurses to participate with task-based learning by e-Health services, whether through basic learning or subsequently [14]-[19]. Consequently, a learning readiness-assessment studying the preparation of nurses engaging in e-health tools is vital in this paper.

Moreover, it gives a strong relation to build a strategy to strengthen nurse education in developing countries. As such, the Libyan health ministry can determine the willingness of nurses in adopting technology in their learning. The purpose of proposing a Learning Readiness Assessment (LRA) is to identify the key areas or factors which are lacking that may drive to such failures in adopting technology.

The study by [20] alluded to the possible obstacles of any specific e-Health plan besides pointing to the shortages in the elements that subsidizes the readiness of healthcare settings to deploy e-Health services. Hence, their study considers important considerations that simplify practical decision making about any e-Health plan.

In addition, [21] suggests another framework, dealing long-term issues about quality of health care and lack of access, to learning with the assistance of e-Health tools. The framework concentrates on the effect of information technology (IT), as generally dependent on mobility aspects, culture, and economic. The researchers acknowledge that the suggested framework works from the perceptions of both organizational readiness and providers; there was limitation in the development in perspective the electronic health records (EHR). They encouraged researches from other perspectives. Consequently, they proposed an additional comprehensive framework which incorporates components associated to the relation between environmental settings to tolerate the use of technology and individual's characteristics.

The study by [22] shows the impact of ICT tools on the growing use of e-Health systems. Their study was developed based on poor sharing of records, breaching patient privacy, incompleteness and inaccuracy; all considered under the core readiness. Their study lacks the consideration of nurse viewpoints about e-Health tool by using service related factors, for instance compatibility, learning support, internet connection, and software.

Reference [23] developed a different framework to include ownership, context, efficacy, time, apprehension, and the elements of turf. Therefore, their framework does not consider other perspectives of e-Health use such as technology factors, competency, and structural; that is believed to have a strong correlational effect on nurses' engagement with e-Health applications at hospitals in Libya.

Based on these studies, there were constructs that were lacking such as the technological, structural, and competency aspects adopted in developing countries—in particular, Libya. Therefore, the researchers recommend that further research is required to study new readiness models to improve the current learning which lacks technology. Moreover, indicating the readiness level for applying a certain learning technology could support, enhance, and formulate nurses' responsibilities to learning. Hence, this paper aims at constructing a LRA for promoting nurses' engagement at hospitals in the Libyan region, according to the adaptation of e-Health services by merging the previous frameworks to be considered.

IV. RESEARCH QUESTIONS

The three research questions that were posed include:

- What are the key factors of human resources, policy, and hardware availability that contribute to the structural readiness of Libyan regional hospitals to use e-Health?
- What are the key factors of software availability, networking, connectivity, and technical support that contribute to the technological readiness of Libyan regional hospitals to use e-Health?

- What are the key factors of appreciation, ability, and motivation that contribute to the competency readiness of nurses to use e-Health in Libyan regional hospitals?

V. THEORETICAL FRAMEWORK

Reference [24] and other scientists in their social learning theory in information systems agreed that environmentally associated variables, such as communication, support, and software have a significant effect on the individual's self-determination to accomplish efficiently. According to this, the influence of environmental factors was illuminated according to the technological and structural readiness to use e-Health

system. However, [25] justified one's engagement as of a self-determination theory perception, where personnel were found to process self-competence in their work. Also, [26] mentioned in the organization theory the specific way of distributing learning resources and information is through an organization that affects the individual's capacity to work, and the following outcomes. The outcome of an individual is identified by environmental settings, for instance physical structure, social technology, culture, and technology. Nevertheless, the researcher built the theoretical research framework as shown in Fig 1.

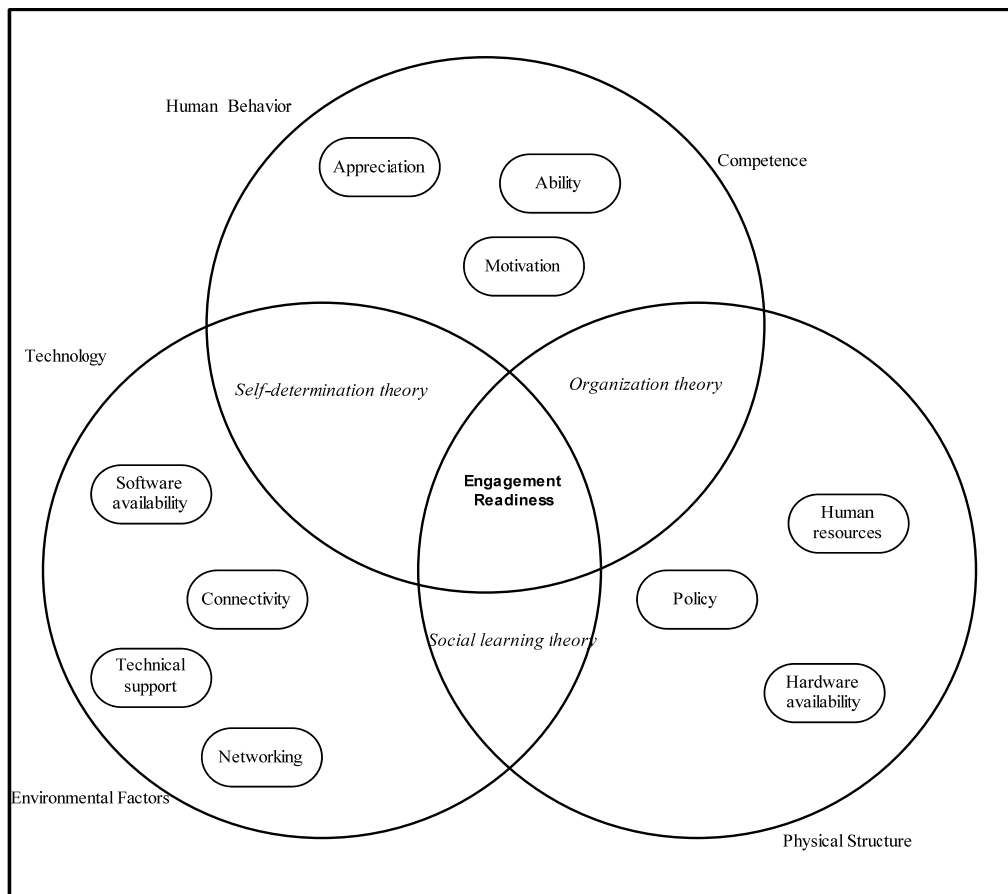


Fig. 1 Theoretical framework

VI. HYPOTHESIZED RESEARCH FRAMEWORK

By revising the literature on e-Health readiness frameworks, it could be concluded that the researchers consider e-Health to reside in technology, along with the structural readiness that organizations usually provide. Different technological elements were considered; for instance, software availability [27] and networking [28]. Technical support [29] and connectivity to the internet [30] were also identified in this research as the key components influencing technological readiness to use e-Health amongst nurses in Libyan regional hospitals. Based on [31] the effect of human resource,

hardware resources, and policy are important elements for the adaptation of the structural readiness to use technology. Reference [32] described that the significance of measuring the effect of using electronic tools on a person's competency level regarding motivation and appreciation which significantly affects the user's engagement level with online environments. This paper depends on the self-determination theory, organization theory, and social learning theory; however, the relationships between the variables were also supported by various readiness frameworks [33].

VII. CONCLUSION

This paper introduced the motivational key components (structural readiness, technological readiness, competency readiness, and engagement readiness) that led to the selection of the research elements to designing LRA in e-Health for nurse learning in Libyan regional size hospitals. Furthermore, this paper discussed all the antecedents that influenced the learning readiness of nurses, by associating the relationships of technological readiness, structural readiness, and competency readiness with engagement readiness.

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