

INVESTIGATING USER RESISTANCE TO HEALTH INFORMATION SYSTEM USE IN KUWAIT PUBLIC HOSPITALS

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Abstract: The modern technological world is characterized by applying information and technology in different aspects of human life. Global health invests in information technology to improve patient healthcare and track healthcare progress. This integration of information technology, however, has met several challenges. Some countries have faced financial hindrances in integrating information technology with health care, legal and regulatory barriers, or organizational, technical, and professional obstacles. Nevertheless, user resistance is the greatest hindrance to integrating information technology into the health sector. System users may adapt the technology, especially in mandatory settings, but may resist that technology for different reasons. Hence, this study investigates users' resistance to using health information system in Kuwait public and its impact on the success of HIS implementation.

Keywords: Health information system implementation, user resistance, healthcare, public hospitals, Kuwait.

INTRODUCTION

In healthcare settings, the availability of timely and accurate information is significantly essential in clinical decision-making. The needed information must be collected, processed, stored, retrieved, and transferred efficiently to make effective decisions. Health Information System (HIS) offers myriad avenues for processing the data so that important information can be retrieved for decision-making, healthcare planning, and allocation of resources to provide quality services (Wager et al., 2017). HIS offers additional benefits of enhancing organizational performance, providing accurate and reliable information, increasing access to information, facilitating inter-professional communication as part of care transmission, and reducing costs for all the involved stakeholders (Sebetci, 2018).

Although there are several studies conducted concerning the challenges of HIS implementation in hospitals, few have concerned user resistance (Asiedu et al., 2018). Most scholars neglect to deeply study the cause and effects of user resistance to HIS, and few failed to include the solutions to counteract it. In order to ensure effective functioning of healthcare services, it is essential to study why such resistance occurs and relevant solutions therein.

This study aims to investigate user resistance to HIS use in Kuwait public hospitals to understand why resistance exists even after a decade of integrating health information systems into healthcare organizations. In doing so, this study first discusses and reviews related literature. Then, the study presents the applied methodology followed by findings and discussion. Finally, the conclusion and recommendation are presented. The contribution of this study is unique as it investigates user resistance to HIS, specifically in the mandatory settings. Shedding light on this

problem will increase HIS adoption and its continuous use, thereby creating the possibility of achieving the promised goals in healthcare.

Health information system (HIS) implementation and potential challenges

HIS refers to a set of systems for the complete healthcare services encompassing patient care and services from the early detection of disease, prevention of health problems, and promotion of wellness in any healthcare setting. Information technology has simplified data processing in the health sector. Information systems have enabled simplified collection, analysis, storage, and sharing of health information. Big data technologies in the healthcare sector have the advantage of handling a high volume of data fast and conveniently. It is handled and processed through batch and stream processing in a healthcare setting.

Although HIS advantages are recognized, its adoption is associated with many internal and external challenges, such as system usability problems, data exchange policy, financial investments, and management support. These challenges hinder the success of HIS implementation in healthcare facilities. Challenges mostly derive from personal factors, interaction factors, and organizational factors. Alohal et al. (2018) stated that personal factors may include cognitive issues, personality traits, and human behavior of resisting change. On the other hand, interaction factors refer to the process of sharing health information between different departments. In contrast, organizational factors are the cultural and structural factors in the healthcare facility.

Cho and Choi (2019) argue that implementing information technology initiatives leads to various changes in processes and users' attitudes and knowledge requirements. These changing

factors usually may contribute to user resistance toward technology use (Chhabra et al., 2020). HIS architecture is technologically advanced, created to process massive of data in healthcare facilities. These systems always deal with complex health information and work tasks. These tasks are the same as those manually performed by healthcare practitioners, but are time-consuming and tedious.

In fact, HIS failure was marked to be high, and hospital adoption of HIS remains low (Norton et al., 2019). Several studies have indicated that user resistance is a root cause of HIS failure (Handayani et al., 2018). Thus, User resistance needs immediate mitigation to benefit from new HIS projects and increase its adoption (Hsieh & Lin, 2018). Recognizing resistance behaviors and perceiving its causes will help top managers to appropriately manage new HIS projects.

Alohali et al. (2018) defined user resistance as “the behavioral expression of a user’s opposition to changes associated with information system (IS) implementation.” In a healthcare organization context, healthcare providers work in an intense environment, in which they are often overworked and under constant stress. Therefore, it is very likely that complex, unreliable, and incompatible HIS will increase users’ mental workload, cause frustration, and lead to resistance (Gagnon et al., 2016).

Previous literature shows that large IS projects, such as HIS implementation, lead to significant organizational changes, such as changes in culture, job structure, and employees’ work routines (Laumer et al., 2016). Accordingly, employees will resist these changes if organizations cannot manage the change or encourage them to accept changes. Alohali et al. (2018) study the user resistance theory, including the practitioners’ perceived threat. They concluded that users who have a negative perception of the information systems will have a higher tendency to oppose them. Personal interactions and organizational factors contribute to the perceived danger. Much research has suggested that perceived threats can lead to emotional pain and perception of a dangerous situation; thus, it is considered a significant cause of user resistance. Some users perceive IS as a threat because of fear of losing their job, fear of losing power, fear of facing changes in their work routine and habits. To conclude, users will resist the new IS when they perceive it as a threat or perceive that it will harm them, their work, or their position within the organization (Alohali et al., 2020).

In fact, in mandatory settings such as HIS adoption in hospitals, users are required to carry out tasks at hand by utilizing the implemented HIS, compared with voluntary settings, where users are not bound to use the implemented technology, which leads to reduced user resistance. Accordingly, users feared of making errors while carrying out transactions. This suggests that the fear of making errors while using new technology results from the degree to which users resist change (Chhabra et al., 2020). In regard to personal factors, age, gender, and background are the leading personal factors contributing to the users’ resistance. Those factors lead to lower user confidence in their ability to drive the required changes in the health sector. Interaction factors include socio-technical issues such as fear of losing freedom in the workplace and their influence on adopting new technologies.

In healthcare organizations, the experienced physicians may have less technical skills than the incoming fresh practitioners.

Vitari & Ologeanu-Taddei, (2018) found that anxiety, self-efficacy, systems’ ease of use, data security fears, perceived usefulness are some factors that affect users’ perception of new technologies. They found that not all healthcare professionals’ staff resists the perceived changes of adopting HISs. Some healthcare professionals show resistance to the new technologies, while others show little or no resistance to the HIS. The reason of showing no resistance could be the users’ IT skills that allow them to accept and deal with the new technology more easily. In line with this, Alohali et al. (2020) found that system users who do not have related knowledge of HIS are more likely to perceive HIS negatively.

Materials and Methods

To investigate the level of HIS users’ resistance, a cross-sectional, self-structured questionnaire survey was applied in three public hospitals in Kuwait that implemented HIS. The target users of this study include physicians, nurses, pharmacists, laboratory specialists, radiology specialists, and information management personnel. Total of 450 questionnaires were distributed among the selected population, and 314 were collected with complete feedback.

Questionnaire items were adopted based on the concept developed by Choi et al. (2014), which includes three conceptual constructs to investigate user resistance: 1) increasing workload, 2) time consumption, and 3) disregarding the potential benefits. The study respondents were allowed to provide their opinion based on their findings relevant to each specific inquiry. The answers ranged from strong disagreement to strong agreement.

The collected data were examined and analyzed using the Statistical Package for the Social Sciences (SPSS) software. Each answer was verified and categorized separately, and sorted according to suitability. The results were then determined by observing them according to their relevance and importance. This study’s applied data analysis tool enabled the researcher to find authentic results and probable solutions.

Results

Results of the demographic analysis showed that the majority of the participants were female (59.9%) comparing to male (40.1%). Respondents ranged in age from 21 to 68 years old, with the majority of respondents (50.3%) being between 31 and 40 years old, followed by 21-30 age groups with 21.9%, and the age group of 41-51 with 20.38%. In terms of the educational level of respondents, most of them are highly educated having Bachelor Degree. The results showed that 10.8% of respondents are PhD holders, 9.2% have Master’s degree, 47.7% have Bachelor degree, and 32.1% of the respondents were Diploma holders. The analysis of the HIS use experience, which ranges from 1 to 15 years, shows that most of the participants (49.4%) have an experience from 1 to 5 years of using HIS, followed by 31.2% having an experience from 6-10 years, and 19.4% of participants used HIS for a period of 11-15 years.

The results of the first conceptual construct regarding workload show that almost half of respondents (56%) think that HIS does not increase their workload. However, disagreement arises as 21% of respondents opined that they receive a considerably increased workload due to HIS use, while 23% remain neutral. Regarding the users who believe that HIS use is

time-consuming, this study found that more than 47.5% of the respondents feel that HIS use is not time-consuming. In comparison, 27% believe that HIS tasks need more time to perform. Surprisingly more than 25.5% of the research participants remain silent in this inquiry. Furthermore, this study also assessed the perception of HIS users of its usefulness in reaching the potential benefits. The results show that most respondents (40%) perceive HIS's role in fulfilling the desired goals, while 25% experience difficulties in understanding HIS benefits, and 35% of respondents were neutral.

Discussion

The analytical findings of this study demonstrate that the implementation of HISs results in the consequence that system users, such as healthcare professionals, should carry out additional duties as information system operators. In contrast, their primary duty as healthcare providers should be well performed. They may complain that their workload becomes significantly heavier. This condition indicates that not all health professionals are tolerant of increasing workloads. The facts show that many health professionals are still not proficient in operating information systems. Those who are not yet skilled in operating information systems need to work hard and undergo information technology skills training to use HIS properly. Increasing workload raises user resistance toward using IS (Entzeridou et al., 2018).

Although the findings of this study revealed that the majority of HIS users do not have a workload, hospitals managers should concern the users who experience a load of tasks when using HIS. In their study, Alohalı et al. (2020) found that some users were dissatisfied because HIS has increased their stress level. The analysis showed that when users are dissatisfied, they are more likely experiencing resistance to HIS use. Chhabra et al. (2020) added, users who resist change had a higher tendency to encounter difficulty in understanding and explaining the results of using technology.

Health information system has the role of handling data processing so that valuable information can be extracted for decision making, health planning, and allocation of resources to provide quality service (Wager et al., 2017). Thus, HIS user should make sure of entering accurate, complete, and reliable data, which will present detailed information. In this study case, some users find this process to be difficult and time consuming, but most of HIS users do not think so. This may results from lack of information technology skills of some users, who need to undergo appropriate and sufficient training programs.

The current study revealed that some of HIS users have no perception of HIS role and benefits while some others have no comment, which reflect a great gap in the top management role. Successful HIS implementation requires managers to introduce the new system with clear policies and procedures about when, where, and how the system is used, so the users become ready for the adoption and participation in the system development. It requires managers to show the benefits of HIS implementation, such as providing accurate, complete, understandable, and reliable information; enhancing organizational performance in terms of improving the quality and efficiency of health services; reducing task time; increasing access to information; facilitating the communication among healthcare providers as part of care transmissions; and reducing cost (Sebetci, 2018). It also requires

an understanding of the organizational, technical, and human issues to be successful (Kruk et al., 2018). Previous studies show that an effective strategy for management is communication, by informing the users about the system benefits, and thus, building anticipations for the system. (Haddara & Moen, 2017). In fact, users need a clear understanding of how the new technology will benefit them or benefit their work (Nadri et al., 2018).

Alohalı et al. (2020) further added that user involvement in the implementation process is crucial, where user involvement refers to the participation of the users or their representatives in HIS development and implementation processes. They revealed a negative link between user involvement and their perceived dissatisfaction, where the lower the user involvement is, the more likely they are dissatisfied. In a large project such as HIS, user involvement gives the user a feeling of control over the development and implementation of the system and helps the user develop realistic expectations for the system.

Conclusion

With the technological advancements in healthcare settings, user resistance is a matter of concern since it is considered a significant hindrance to HIS implementation. This resistance is contributed by several factors, such as lack of proper user training, lack of trust in the system, fear of tasks errors, and lack of adequate knowledge of HIS benefits. Resistance is a problem for large organizations because it is hard to recognize and prevent organizations from reaching their goals.

In this study, the researcher assessed user resistance towards using HIS in three public hospitals in Kuwait based on the criteria defined by Choi et al. (2014): increasing workload, time-consuming, and disregarding the potential benefits. The findings concluded that most HIS users in Kuwait public hospitals do not experience resistance towards the implemented HIS. In comparison, some users show resistance towards using HIS. These findings must be concerned by top management and the assigned stakeholders to avoid any undesirable consequences and to ensure successful implementation of HIS. Users must be involved in the early stages of HIS development and implementation. A clear explanation of the goals and expectations of HIS project should be presented. In addition, appropriate and sufficient training programs must be conducted to ensure proper use of the implemented system. Finally, top management has to collect regular feedback from HIS users to recognize any challenges and to ensure successful HIS implementation.

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