

THE IMPACT OF HOSPITAL INFORMATION SYSTEM ON THE WORKING PROCESS OF IMAM JA' FAR SADIQ HOSPITAL, ALBORZ PROVINCE - 2016

Abstract

This research has been done on the impact of the hospital information system on the staffing of Imam Ja'far Sadiq Hospital in Alborz in 2016. The research method is applied and in terms of data collection method, descriptive-survey method. The statistical population consisted of all employees of contractual, design and contract personnel working in Imam Ja'far Sadiq Hospital. In this study, 384 people were selected using Cochran's formula, which were selected by available sampling method. The validity of the researcher-made questionnaire and their reliability were confirmed by Cronbach's alpha with a coefficient of above 0.7. In the descriptive statistics section, mean, standard deviation, frequency and percentage of frequency were used. In the inferential statistics, the inclination and elongation were used to determine the normality of the data. The results of one-sample T-test and Friedman indicate that the hospital information system improves the work process of the staff members of Imam Jafar Sadiq Hospital. Also, the hospital information system has the greatest impact on hospital support and administration and has had the least impact on hospital performance. It should be noted that the results are consistent with most studies performed.

Key words: Hospital Information System, working Process, Staffing, Imam Ja'far Sadiq Hospital

Introduction

Hospitals as one of the most important social organizations have a major role to play in improving the health status of the country and providing health care services that must receive the correct medical information for their efficient administration and to provide educational, research and The development of medical and paramedical sciences, improving the quality of treatment, optimizing the managerial aspects of health care centers, reducing the costs of monitoring centers, classifying and deducing information so that information can be provided to all decision-makers in an appropriate and appropriate manner. Hospitals, especially their principals and managers. Therefore, the performance of a complex organization such as a hospital requires access to information that is now collected by the hospital information system (Poorahmad, 2010). information provided by the system Audit activities: such as scheduling and scheduling, a list of actions to be undertaken in the near future on Hospital Information (HIS) generally includes:

1. Workload statistics: such as admission, bed occupancy, number of surgeries and length of stay.

2. tasks and actions in special cases.
 3. The status of employed personnel: such as the load or volume of work of the personnel employed, their competence and suitability, patient satisfaction.
 4. Financial performance: income and expenses, the amount of liquidity available, actual distribution of funds.
- The system is also designed to automate hospital affairs, such as reporting test results, entering physician orders, prescribing drugs, controlling drug stores, central warehouses, nutrition units, and so on. Hospitalized Hospital Software (HIS) is an alternative to manually roaming in the hospital.

The system mechanizes hospital activities from admission to patient clearance, effective communication between departments, as well as faster and more accurate extraction of statistical and managerial reports. The amount of information that is produced in hospitals and transferred from one part to another is worth attention. Managing this heterogeneous information is a complex task. Therefore, information and communication technology can be very useful and effective in this regard (Pourahmad, 2010). On the other hand, in hospitals, the source of all management activities, especially in health care, having information Comprehensive, relevant and timely. In the health sector, the use of efficient information systems to increase the efficiency, effectiveness and quality of services as well as customer satisfaction is indispensable. A study on the impact of information systems on employees' work processes has resulted in a variety of outcomes, so that some studies have assessed the changes in the pattern of work resulting from the implementation of an information system, but most studies on changes in the time of documentation Have focused. Pywitness (2007) examined the impact of electronic records of clinical records on the time of documentation of nurses and doctors, and reported that reducing the time of documentation is a deceptive and misleading goal (Paysient et al., 2007). Study results in order to gain a deeper understanding of the experiences of nurses and midwives in the use of the clinical information system, nurses and midwives with good clinical information systems showed great tendency toward using this system. On the contrary, there were people who had experienced disparities and failures in the use of clinical information systems. Masolny et al., Quoted by Cahwei et al. In Italy, found that 60 percent of nurses were beneficial in assessing the acceptance of doctors and nurses from the hospital information system. The system was comfortable and 44 percent comfortable and easy to use. 88% of nurses were

satisfied with increasing the efficiency of daily activities by the hospital information system (Kuhi et al., 2007). The results of a study done in American automated hospitals showed that management information, financial and clinical information systems in all hospitals have led to cost reductions (Barzekkini et al.,

2009). The results of a study conducted in educational hospitals in Mashhad showed that 53.2% of the staff were satisfied with the quality of the information system of the hospital information system (Kimyafir et al., 2007). In Iran, hospital information systems are at an early stage, and despite the significant advances made in recent years, due to changes, more and more financial and technical investment is needed to meet the expectations and needs of organizations and their users. Therefore, in this research, the researcher is trying to assess the impact of the hospital information system on the staffing of Imam Jafar Sadiq Hospital staff. However, the hospital information management system is a set of related components that should provide clinical, managerial, and technical information in order to support planning, decision making, coordination and control of hospital services, collecting, processing, storing and (Mahmoodzadeh, 2006; Esfzadeh, 1997). Logical considerations of society have made demand for quality services a major goal for any hospital. In order to respond to such a need for modernization in the community and medical spheres of the country, hospital information systems need to integrate and provide basic goals such as improving the quality of data, reducing the exchange time, increasing the level of satisfaction, and increasing the quality of services and, finally, reducing costs before Trend (Tabibi, 2006; Shahmoradi, 2006). Although the most basic goal of information systems in the health sector is helping management to achieve its ultimate goal of promoting community health, but increasing the accuracy and ease and speed of access to clinical data in the field of treatment in hospital information systems is of particular importance. E) (Semin et al., 2005). Therefore, comprehensive hospital information system, while providing easy access to data and information, should be effective in realizing the desired outcomes and organizational outputs such as performance and process. On the other hand, considering the importance of performance and process in public hospitals of the country, and the increasing use of hospital information systems, on the other hand, this study evaluated the impact of hospital information system as a modern decision support tool in complex organizations such as the hospital The most important output of the organization is the performance and process of work (Rybier et al., 2005). Therefore, the researcher in this article is to assess the impact of the hospital information system on the staffing of the employees of Imam Jafar Sadiq Hospital. In order to achieve this goal, the following questions have been asked:

- How does the establishment of a hospital information system affect patients' satisfaction?
- How is the establishment of a hospital information system on hospital nursing services?
- How does the establishment of the hospital information system affect hospital

support and office affairs?

- How does the establishment of hospital information system affect access to medical information in patients?
- How does the establishment of hospital information system affect the status of information exchange between hospital units?
- How does the establishment of a hospital information system affect hospital financial performance?

Methodology

The present research is a descriptive-survey data collection method. The statistical population of this research is all employees of contractual, design and contract personnel working in Imam Jafar Sadeg Hospital. In this study, due to the difficulty of selecting the sample, the available and non-random sampling method was used. Given that the size of the community is unknown, the following formula is used to estimate sample size. In this case, the error rate, or d , was considered equal to 0.05. As you can see, the sample size is 384 people: In this paper, a researcher-made questionnaire was used. The questionnaire consisted of 7 general questions and 23 specific questions about the effect of hospital information system on the Likert scale (lowest score of 1, highest score of 5), which was completed by hospital staff. The questionnaire is a five-point scale (fully agree, agree, moderate, opposite, totally opposite), each of which has 5 to 1 points respectively. The validity of the researcher-made questionnaire was verified and their reliability was confirmed by Cronbach's alpha with a coefficient greater than 0.7. In the descriptive statistics section, mean, standard deviation, frequency and frequency were used. In the inferential statistics, the inclination and elongation were used to determine the normality of the data. Then, the results were analyzed using one-sample t-test and Friedman test.

Findings

In this section, the descriptive findings of the research variables are presented first. The variables studied included the impact of the hospital information system on nursing, support and administrative services, access to medical information of patients, the status of information exchange between hospital units and hospital financial performance. In the following, the mean and standard deviation of the variables of the research are presented in the sample.

Table 1: Average, standard deviation, minimum and maximum results of main research

variables	minimum	Maximum	mean	Standard deviation
Nursing services	3.60	4.80	4.24	0.266
Supporting and administrative matters	1.89	3.22	2.58	0.284
Access to medical information for patients	2.00	5.00	3.42	0.617
Information exchange between hospital units	2.67	4.67	3.61	0.400
Hospital financial performance	3.25	5.00	4.24	0.322

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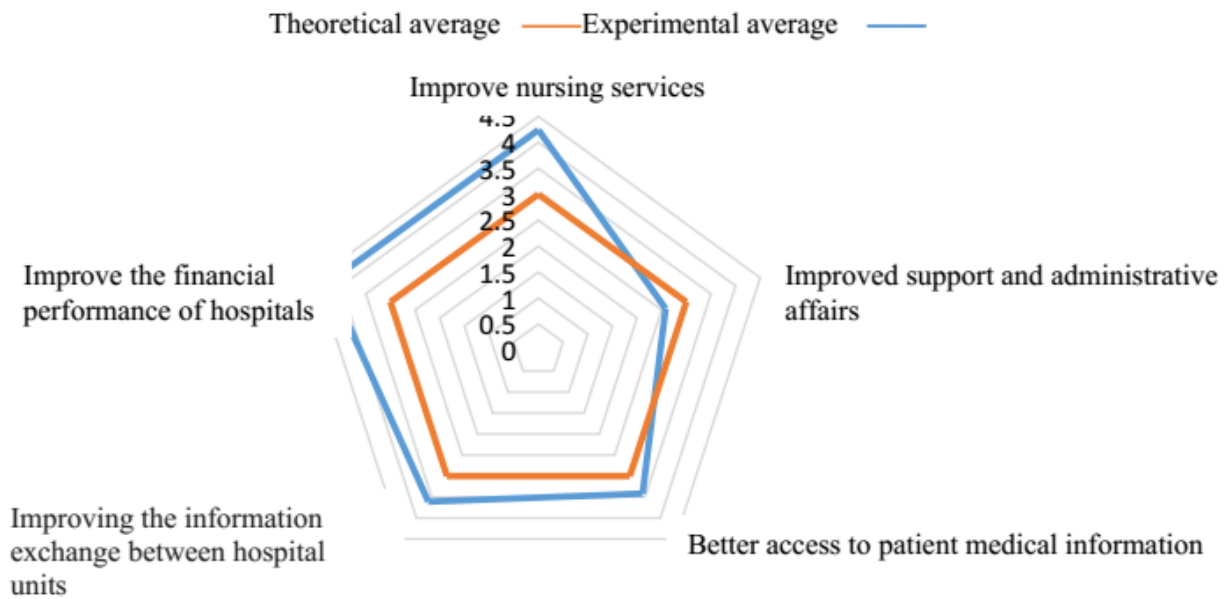
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As it is seen in Table 1, the mean of nursing services (4.24) is higher than other variables, and the average of support issues (2.58) is lower than other variables. Regarding the normal data, we can use the parametric tests to examine the research hypotheses instead of nonparametric tests. To analyze the paper questions, a single-sample T test was used which is acceptable in the results of this test in Table 2:

t value	Degrees of freedom	Sig	Difference of meanings	Experimental average	Theoretical average
91.36	383	000	1.238	4.23	3
-29.18	383	000	-422	2.57	
The Impact of Establishment of Hospital Information System. Access to Medical Information of Hospital Patients	13.18	383	000	415	3.41
The Impact of Establishment of Hospital Information System on the Situation of Information Exchange between Hospital Units	29.88	383	000	610	3.61
The Impact of Establishing a Hospital Information System on Hospital Financial Performance	75.34	383	000	1.23	4.23

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As shown in Table 2, in this test, the average of 3 was considered as the theoretical average and the average of respondents' responses as an experimental mean. The results showed that the average of the respondents' knowledge about the impact of establishment of the hospital information system on all treatment processes in Imam Jafar Sadegh Hospital (52.2) was higher than theoretical average (3). A single sample t test also shows that there is a significant difference between the theoretical mean (ie, 3) and the experimental mean (ie, the scores obtained from the questionnaire). Therefore, it can be said with 95% confidence that the establishment of the hospital information system improves the hospital's hospital services, improves the hospital's hospital nursing service, better access to medical information for hospital patients, improves the information exchange between hospital units and improves performance. The financial staff of Imam Jafar Hospital is honest. In the following, the radar chart is used to compare the mean of the impact of the establishment of the hospital information system on improving the work process of the the staff.



Radar chart to compare experimental and theoretical mean

he following is used in Table 3 to prioritize the effect of establishment of the hospital information system on improving the working process of the staff working in Imam Jafar Sadeg Hospital. Friedman test is used:

Table 3: Rated Average Impact of Establishment of Hospital Information System on Improving Work Process of Hospital Staff

Variables	Average ranked
The Impact of Establishment of Hospital Information System on Improving Nursing Services	4.17
The Impact of Establishment of Hospital Information System on Improvement of Supporting and Administrative Problems	1.16
The Effect of Establishing a Hospital Information System on Better Access to Medical Information for Patients	2.46
Impact of establishment of hospital information system on improving the status of information exchange between units	2.90
The Impact of Establishment of Hospital Information System on Improving Hospital Financial Performance	4.31

Regarding the ranked average, the impact of the establishment of the hospital information system on the improvement of the work process of employees is as follows:

1. The Impact of Establishment of Hospital Information System on Improvement of Supporting and Administrative Problems
2. Effect of establishment of hospital information system on better access to medical information of patients
3. Effect of establishment of hospital information system on improving the status of information exchange between units
4. The Impact of Establishment of Hospital Information System on Improving Nursing Services
5. Effect of establishment of hospital information system on improving hospital financial performance

Table 4: Friedman Test the Impact of Establishing a Hospital Information System on Improving the Work Process of Employees

Significance level	Degrees of freedom	Number	Chi Square
000	4	384	1063.576

Based on the Friedman test and the significance level of Chi-square in Table 4, the prioritization of the impact of the establishment of the hospital information system on the improvement of the employees' work process is statistically significant (ChiSquare = 1063.576 and sig = 0.000).

Discussion and conclusion

As stated above, the hospital information system is a comprehensive software to integrate patient information for the purpose of sending and exchanging comprehensive patient information between departments and other treatment centers in order to accelerate the patient's care and treatment process, improve quality and reduce costs. This includes maintenance, care, diagnosis, counseling, and treatment, while considering the transfer of medical data and educational issues. As shown in the single-sample t-test, the hospital's information system has affected the work process, and this has had a positive impact and improved process performance. Therefore, the hospital's information system improves support and administration issues, has improved access to medical information for patients, improved information exchange between units, improved nursing services, and improved hospital financial performance. Also, the greatest impact of hospital information system on supporting and administrative affairs and the least impact on hospital financial performance. But researches that are consistent with the results of this hypothesis are Baba Mohammadi and Kahi (2012), Global et al. (2012), Amiri et al. (2011), peasant and colleagues (2011), Sadoghi et al. (2011), Mozaffarian et al. (2012) Colleagues (2011), Qing Shang (2012), Azizi and Abdul Khani (2011), Borzakki (2009) Stucker et al. (2010), Judge Saidi and colleagues (2012). But research that does not conform to the results of this hypothesis, is Kahwi and his colleagues (2013), Mokhtari and his colleagues (It is suggested that a hospital information system be developed to improve the information exchange between units for the improvement of the information exchange between units in order to improve nursing, support and office services, in order to improve the financial performance of other hospitals. It is also suggested to other researchers that a comparative study between public and private hospitals should address the impact of the hospital information system on the staffing process and the factors affecting the process of hospital staff.2012) Azizi et al. (2011)

References

- Amiry M, Sadeghi E, Khosravi A, Chaman R, (2012) Self-assessment of network administrators and users about the effect of hospital information system on the performance and work processes of Imam Hossein Hospital, Shahroud Hospital, Health Information Management / Eighth / Fourth Edition / 490-499
- Asefzadeh S. Medical Educations & Health Services. Tehran: Nashre Elmi Farhangi Publication; 1997: 22-75[Book in Persian].

- Azizi.A, Abdolkhani.R, 2011, an investigation the effect of hospital information at Razi hospital performance at Ahvaz, Vol.2, No.4, pp.185-191.
- Borzekowski R. Measuring the cost impact of hospital information systems: 1987-1994. J Health Econ 2009, 28(5): 938-49;.
- Ching-Sheng Chang, Su-Yueh Chen, Yi-Ting Lan.(2012) Motivating medical information system performance by system quality, service quality and job satisfaction for evidence-based practice, BMC Medical Informatics and Decision Making 2012, <http://www.biomedcentral.com/1472-6947/12/135>
- Dehghan R, Ghorbani V. Electronic health urkish ent strategic need for health care services. Health Information Management 2004; 1(2): 57-69.
- Jahani.MA, Nasheneh. A, Nagavian.M, Bijani. A, Haddad. Ghamroo Abdi M (2013), Influence of Hospital Information System on Employees' Performance and Performance from User's Perspective in Hospitals Affiliated to Babol University of Medical Sciences in 2013, Babol University of Medical Sciences Journal Volume 16, Number 7, 70-63
- Kimiafar KH, Moradi GR, Sadoughi F, Hosseini F. A study on the user's views on the quality of teaching hospitals information system of mashhad university of medical sciences- 2006. Journal of Health Administration 2007; 10(29): 31-6.

Khawi M, Soleimani M, Ghazavi S, Alaei S (2014), A Survey of Nursing Staff Viewpoints on the Effects of Hospital Information Computer System on Care Process. Health Information Management, Volume 4, Number 2; 193 - 202.

- Mahmoudzadeh E. Managing the future by coming technologies. 2nd ed. Tehran: Isiran Institute; 2006: 15-65[Book in Persian.
- Poissant L, Pereira J, Tamblyn R, Kawasumi Y. The impact of electronic health records on time efficiency of physicians and nurses: a systematic review. Journal of the American Medical Informatics Association 2007; 12(5):505–16.
- Poorahmad A. Review of HIS and Its Role in Medical Services Development [Online]. 2010; Available from URL: [http:// finfotech. wordpress.com/2010/0](http://finfotech.wordpress.com/2010/0)
- Shahmoradi L. Defining evaluation indicators of health information systems and a Model Presentation [Thesis in Persian]. Iran: Iran University of Medical Sciences, Faculty of Management and Information; 2006.
- Staggers N et al. (2010), A usability assessment of AHLTA in ambulatory clinics at a military medical center. Mil Med 2010;175
- Syamyam H, Ali Golbandi K, Nasiri E & Shahrabi A. Health information management role in hospital management. Scientific Communication Monthly Journal of Irandoc 2005; 4(3): 102-12[Article in Persian.
- Tabibi SJ. Total quality management in health care system. Tehran: Jahan Rayaneh; 2006: 49-63[Book in Persian.