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## RESEARCH ARTICLE

# EXAMINING THE IMPACT OF ACCESS TO HEALTHCARE INFORMATION IN PROVIDING SERVICE IN HOSPITAL LEVEL OF HORMOZGAN PROVINCE

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### Abstract

**Objective:** Examining the impact of access to healthcare information in providing service in hospital level was performed in Hormozgan province. The study is applied in objective respect.

**Methods:** The statistical population of this study includes managers and employees of private hospitals of Hormozgan province who are 3240 persons that based on Morgan sample content table, 380 persons were specified as research sample. The questionnaire has been adjusted based on 5-value Likert scale. For analysis of collected data, Pierson correlation coefficient test using SPSS software version 18 and structural equations approach (pathway analysis) using AMOS software version 20 has examined and tested the research hypotheses.

**Results:** There is a positive and direct relation between access to healthcare information and providing services with correlation coefficient of 0.712. The results structural equation showed that access to healthcare information with pathway factor of 0.82 influences providing service.

**Conclusion:** On the basis of results, with healthcare information it is suggested that topics relating to providing services to be noticed by authorities.

**Keywords:** Healthcare information, hospital, providing service.

## INTRODUCTION

Healthcare management is a collection of knowledge and skill which secures access to health information for timely offering of cares and decision making in critical occasions for patients in various institutes based on special order and arrangement. Correct and accurate information for specifying complex and multiple occasions with which we are encountered today such as diseases and lesions, prevention and treatment, environment and society health is considerably critical and sensitive<sup>1</sup>. On the other hand, hospitals as one of the most important social organizations have a major role in improving the state health status and providing healthcare services and are one of the most sensitive organizations for correct managing of which information should be accurately collected and after monitoring and classifying and induction provided for all hospital decision makers especially its managers and directors in a suitable form and suitable time<sup>2</sup>.

A health information system or hospital information system which is briefly called HIS includes a database and universal software for integrating information

relating to the patient for sending and exchanging the patient comprehensive information between wards and other treatment centers for accelerating healthcare process of the patient, quality improvement, increasing satisfaction and reducing costs<sup>3</sup>. In other words, hospital information system is a system which could cover all tasks and operation which are performed in the process of the patient treatment in various parts of a treatment center including diagnostic, treatment, office, financial and research and besides receiving and accurate recording of the patient identity and medical information, specifies the ability of displaying each action progress and the impact of that action on other treatment affairs of the patient and finally keep, retrieve, classify all information of the patient in the Electronic Patient Record and provide it for various elements of a state treatment system for supplying treatment objective<sup>4</sup>, hospital information system has been designed for automatizing hospitals affairs like reporting the tests results, entering the physician orders, prescribing medicines, controlling the drugstore, central store, nutrition unit stock and so on. In hospital information system, an electronic record is

formed for each patient so that it covers all hospital activities (including treatment, diagnostic, financial and so on) of the patient from reception to discharge. In this system, all treatment actions, medicinal orders and diagnostic services are sent through the system to clinics and Para clinics and even office centers such as accounting, drugstore, stores and other units and their response is received. Therefore, the time of beginning and end of all actions are specified and pursuable in the system. Information system is a system in which HIS information are stored comprehensively in a database and from there in the required time and place, information are available for the users in special forms<sup>5</sup>. It is for many years that industrial countries utilize this technology in the arena of healthcare, but implementing this system in hospitals of various regions of Iran indicates providing of cultural infrastructure, suitable technology for creating and complementing health systems according to world standards. In recent years, with fast improvement of technology, hospital information systems have taken a more novel form which has been noticed not only in management respect but from clinical view. Existence of equipment armed with clinical computer facilities like (MRI, CT scan, etc.) and also software designed especially for clinic and Para clinic sections and advanced medical communities use of such software in the domain of hospital information systems and using it in international communications and necessity of preserving privacy and privatization has caused this complex collection of information technology to progress toward integrated information architecture. In the bed of this architecture, standard molds like HL7 have been formed for responding the need of sharing information or helping in effectiveness of clinical processes trend and error reduction and beside it standards like Dicom have been created for medical pictography, management of medical picture information in software and medical equipment and so on<sup>6</sup>. The aim of hospital information system is supporting hospital activities in scientific, tactic and strategic levels. In other words, the aim of hospital information system is using computers and communicational means for collecting, storing, processing, reading out and establishing relation between patient care and office information in all hospital activities and fulfilling needs have all authorized system users. In university hospitals, supporting research and training are also among aims of hospital information system<sup>7</sup>. Hospital information system is a mechanized system of information and document management in hospitals. Regarding wide evolutions in medical technology and increasing of patients' expectations, an increasing need to using hospital information system has emerged in the hospital. In technology era and explosion of information in healthcare level, experts believe that in 21<sup>st</sup> century, those hospitals which lack hospital information system don't have anything to say and lack the ability to compete other hospitals. Hospital information system is a powerful information tool which can help hospital managers in the process of managing hospitals and making correct decisions and

considerably increase the hospitals positive performance<sup>6</sup>. This study aims to answer this question that whether there is any relation between access to healthcare information in providing service in hospital level of Hormozgan province?

## METHODS

The method of the present study is descriptive of survey type and the statistical population of this study includes all managers and employees of private hospitals of Hormozgan province who are 3240 persons that based on Morgan sample content table 380 persons were specified as research sample. Finally, after distribution of questionnaires, 372 questionnaires were returned. They were distributed among the population using simple random method. The assessment tool is questionnaire and based on combined theoretical framework, scholar made questionnaire has been used. Questionnaires have been adjusted based on 5-value Likert scale and include 5 ranges (very low, low, medium, high, very high) which assign scores 1, 2, 3, 4, 5 to itself from very low to very high respectively. Validity indicator of assessment tool items is of nominal reliability from professors' consensus and the questionnaire's validity was confirmed with analyzing exploratory factor and the questionnaire reliability was obtained using Cronbach alpha coefficient that the reliability factor of 0.79 was obtained for the whole questionnaire. The results have been expressed regarding SPSS software and AMOS and statistics in two levels of descriptive and inferential.

## RESULTS AND DISCUSSION

For realizing adequacy of sampling in factor analysis, Kiser- Mayer- Elkin test was used. The results of this test have been shown in Table 1.

**Table 1: Kiser- Mayer- Elkin test.**

Indicator	
KMO	0.815

As the results of Table 1 showed, Kiser- Mayer- Elkin test indicator is equal to 0.815 and regarding that the nearer this indicator is to 1, it shows suitability of measuring and then it is concluded that the considered data are suitable for factor analysis.

**Table 2: Bartlett test.**

An approximation of Chi-square statistics	681/2540
Freedom degree	212
Significance level	0.001

For realizing correlation of studied items, Bartlett test was used. The results of this test have been shown in Table 2. As Bartlett test in Table 2 shows, the smaller is the results of significance level of this test, it indicates that this data has the ability to form factors. In this research, the result of this test is significance in level  $p < 0.01$ . Therefore, with this explanation, it was

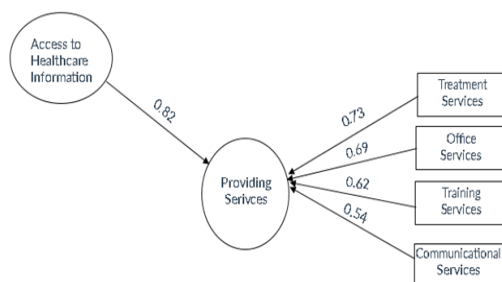
specified that performing factor analysis is suitable for this research. The results obtained from Table 3 shows "general explained variance" with special value higher than 1 in this test that special values after rotation

respectively include: 3.542, 2.772, 2.503 and 1.182% of test variance and totally it explains 71.423% of total test variances.

**Table 3: The results of explained variances.**

Components	Special Rates			Special Rate of exploitative factors without rotation			Special rate of exploitative factors with rotation		
	Special Value	A % Variance	Aggregative %	Special Value	A % of Variance	Aggregative %	Special Value	% of Variance	Aggregative %
Treatment Factors	6.371	45.507	45.507	6.371	45.507	45.507	3.524	25.301	25.301
Office Factors	1.508	10.771	56.278	1.508	10.771	56.278	2.772	19.799	45.100
Training Factors	1.005	7.967	64.245	1.115	7.967	64.245	2.503	17.879	62.979
Communicational Factors	1.005	7.178	71.423	1.005	7.178	71.423	1.182	8.444	7.423

As it is shown in Figure 1, the impact intensity of independent variable of access to healthcare information on dependent variable of providing services is 0.82. Fitness indicators are one of the most important stages of modeling and this criterion shows that whether the model represented by data confirms the research measuring model or not.



**Figure 1: The impact intensity of independent variable of access to healthcare information on dependent variable of providing services.**

## CONCLUSIONS

The general aim of this study is to examine the impact of access to healthcare information in providing services in Hormozgan hospitals. Healthcare information is a mechanized system for managing information and document in the hospitals. Regarding the wide evolutions in the field of medical information technology and increasing patients' expectations, increasing need to using hospital information system has been created. Access to healthcare information is a powerful information tool which could help managers in the process of managing the hospital and making correct decisions and it considerably increases the hospitals performance. Inefficiency of manual methods of doing tasks, growth of research especially medical research across the world and fast increase of information volume, increasing of personnel specialized level, growing increase of healthcare costs, increasing of patients' expectations, necessity of medical centers and medical sciences specialists relation with each other are among the most important necessities and reasons of access to healthcare information. Access to healthcare information has many capabilities and added value and could create a revolution in healthcare services, and cause promotion of medical services quality, communication services,

training services and office services in managing hospital. Internal and foreign studies confirm these favorable impacts. Therefore, optimal planning, triggering and utilizing of hospital information system are necessary and could change type and quality of providing healthcare services and relating research activities. Also, it should be pointed out that regarding increasing growth of science and technology in all sectors and organizations all over the world and also ample problems in the field of documenting patients information, such as losing information, lack of timely access to patient information and their health and treatment history, lack of access to patients information in various geographical regions and considering high volume of referrals, necessity of replacing electronic systems instead of paper systems in healthcare sector seems necessary. The studies have shown that regarding the performed surveys, standards have been designed so that electronic systems topic support creating structured data, nomination systems and standard classification, creating a database for storing information and evaluating and analyzing findings, preserving privacy and information security all of which are essential elements of creating health electronic record. All examined organizations relying on these standards, besides promoting processes of information management, medical records and securing services quality, also provide a suitable ground for reinforcing healthcare information system and creating health electronic records.

Results of a previous study have shown that existence of hospital information system and its subsets causes the patient satisfaction and so promotion of hospital performance<sup>7</sup>. A previous study showed that implementation has caused improvement of Bahrami children hospital organizational performance and hospital information system<sup>8</sup>. A previous study has stated that one of indicators of healthcare development is existence of information system which follows various goals such as storing management, retrieving and analyzing information and facilitating research affairs and on the other hand technological changes have guided treatment centers to using the above information systems. For fulfilling clinical, managerial and legal information needs, managers have noticed development of computer files<sup>9</sup>. A previous study has addressed the impact of technology on value of creating cooperation in healthcare<sup>5</sup>. Improvements

occurred in technology, have enabled patients to be informed and have caused patients to play an active role in clinical contacts with physicians. The results showed that information before contact has a positive impact on improving service interaction and

commitment to adaptation with medical instructions. This impact happens using interactions nature formation, improvement of patient and provider orientation and promoting participation in common decision making process.

**Table 4: General fitness indicators of conceptual model and the research.**

Acceptable Fitness	Primary Model	Abbreviation	Name of Indicator	Indicators Grouping
Greater than 5%	21.97	X <sup>2</sup>	Chi-Square covered level	Absolute Fitness Indicators
Gfi> 90%	0.91	Gfi	Fitness goodness indicator	
Agfi>90%	0.92	Agfi	Modified fitness goodness indicator	Frugal Fitness Indicators
Higher than 50%	0.91	Pnfi	Normalized fitness goodness indicator	
Rmse<10%	0.062	Rmse	Estimation error mean square root	
The Rate Between 1-3	1.69	C <sub>min</sub> / Df	Normalized Chi-Square to freedom degree	

The concept of creating cooperation value in the study shows that service providers require using approaches of providing service so that it effectively utilizes the patient resources to create value in the format of cooperation. Therefore, information is one of valuable and major resources of managers of an organization. As human resources, primary materials and financial resources in the production process have a special role and value, information has a special value in the era of information and communication. Access to health information systems could help hospital managers and personnel in providing services for patients. Existence of information systems is one of indicators of healthcare development. Healthcare information, whose main performance is establishing relation and integrating the patient data, plays a considerable role in providing services in Hormozgan hospitals.

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#### AUTHOR'S CONTRIBUTION

**Zareipour P:** writing original draft, methodology, investigation. **Hessam S:** formal analysis, data curation, conceptualization. **Yazdanpanah A:** writing, review and editing. All authors read and approved the final manuscript for publication.

#### DATA AVAILABILITY

The data and material are available from the corresponding author on reasonable request.

#### CONFLICT OF INTEREST

None to declare.

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