

Evaluation of the structure of websites of educational hospitals of Fars province in 2016

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ABSTRACT

Introduction: In the recent years, evaluation of websites has become one of the main organizational instruments for the relationship between provision of services for customers and beneficiaries. Despite the high costs for design and implementation of websites, less attention has been paid to evaluation of these websites' function. This might be due to the lack of appropriate instruments and frameworks for evaluation of websites. In order to assess hospitals' information, their websites have to be evaluated regarding webometric criteria so as to identify their strength and weaknesses. Therefore, this study aimed to evaluate the websites of educational hospitals of Fars province in 2016.

Method: In this descriptive study, the subjects included all the 43 active websites of educational hospitals of Fars province; they were evaluated by three experts in health information technology. The study data were collected using a checklist whose validity had been confirmed in the previous studies. After all, the data were analyzed using descriptive statistics, SPSS 21 and Excel 2013 software, and the results were presented through tables.

Results: The mean scores obtained from three evaluators showed that out of the 43 hospitals under investigation, 35 and 8 hospitals were ranked as good and moderate hospitals, respectively. In addition, the lowest score was related to interactive exchange of views (30.25%), while the highest scores were related to information objectivity (100%), information accuracy (100%), and non-textual views (100%).

Conclusion: The overall quality level of most of the hospital was relatively acceptable. But it is necessary that the hospitals improve their websites based on information updatedness, coverage of special addressees, navigation, efficiency and interactive exchange of views. The improvement in the latter criterion will help in reducing the number of daily referrals to the hospitals.

Keywords: Evaluation, website, Internet

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Introduction

World Wide Web is one of the most important instruments applied for internet services (1). The daily increase in the volume of information available on the web and accessibility of various types of information within a short period of time has resulted in an increase in the use of this network compared to other media (2). Evidence has indicated that almost 75-80% of internet users in the U.S. searched for their needed medical information through the web and that 75% of these individuals stated that the results played key roles in their decision making (3).

Hospital information website is an appropriate system for information exchange among patients, hospitals, and medical staff and attracting more customers. Hospital websites have the ability to change programs and working methods and can provide the ground for providing society

members with inexpensive services through proper information. These websites can also be used as important media for communication with the society in the case of social crises, such as natural disasters. In fact, hospitals can respond to a large number of society members' questions using websites (4).

Quality of information, i.e. provision of understandable, related, and up-to-date information, is one of the effective factors in the success of websites (5). The higher the quality of information in websites, the more they will be selected by customers (6). One of the major goals of websites is supporting customers or patients. Therefore, providing the possibility of mutual communication with patients is an important issue in attraction of websites (7).

Patsivera et al. conducted a study on public hospitals' websites in 2009 and found that less than half of the governmental hospitals had taken part in investment

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for virtual presence. In addition, almost all the available hospital websites were informative, but lacked considerable information for helping Greek health services consumers choose a service provider (6). Similarly, Maifredi et al. carried out a research in Italy in 2008 and came to the conclusion that no websites were there in a lot of hospitals and the available websites suffered from several limitations. Italian hospitals' websites are more than a source of information about acceptance and services. They are in fact an instrument for communication between users and hospitals (8).

In the recent years, evaluation of websites has become one of the main organizational instruments for the relationship between provision of services for customers and beneficiaries. Despite of the high costs for design and implementation of websites, less attention has been paid to evaluation of these websites' function. This might be due to the lack of appropriate instruments and frameworks for evaluation of websites (9). In order to assess the hospitals information, their websites have to be evaluated regarding webometric criteria so as to identify their strength and weaknesses. Therefore, this study aimed to evaluate the websites of educational hospitals of Fars province in 2016.

Method

This research is a descriptive study performed in June 2016. The research population included all the active websites of educational hospitals of Fars province. The sampling was not performed and all the 43 websites of hospitals of Fars province were evaluated. However, Gerash hospital was excluded from the study due to inactivity.

The research was done in two stages. In the first stage, websites of hospitals of Fars province were extracted from the Website of Shiraz University of Medical Sciences. In the second stage, the study data were collected using a checklist whose reliability and validity were approved by Nadri and Azizi (10). This checklist contained 10 standard indices (Table1).

Three experts in health information technology used the checklist to evaluate the structure of the websites of the study hospitals. In addition, the mean and standard deviation were obtained from the evaluation of the three evaluators as to hospital ranking and criteria rating.

This checklist contained 50 items and scores. Scores 1 and 0 were allocated to existence and absence of each item on the hospitals' website, respectively. Therefore, Likert scale was used to rank the hospitals based on these 50 scores. Accordingly, if the mean scores of three evaluators were (50-40), (30-39), (20-29), (19-10) and <10, they represented very good, good, moderate, weak, and very weak ranks, respectively. Also, the mean and standard deviation were obtained from the evaluation of the three evaluators as to criteria rating and reported in percentage. Accordingly, percentages calculated >80%, >60%, >40%, >20%, and <20% represented very good, good, moderate, weak, and very weak, respectively. After all, the data were analyzed using descriptive statistics, SPSS 21 and Excel 2013 software, and the results were presented through tables.

Results

The results showed that overall quality level of most of the websites was good (Table 2). In addition, all the hospitals' websites received complete scores (100%) regarding information accuracy and non-textual views that were ranked as very good. Furthermore, all the study websites gained complete scores (100%) concerning information objectivity except Hafez hospital website that got the lowest score with a mean and standard deviation of 0.67 ± 0.47 and it was ranked as good (67%). The quality of websites on other evaluation criteria is presented in Table 3.

Among the 43 educational hospitals' websites, the lowest score was related to interactive exchange of views, while the highest scores were related to information objectivity, information accuracy and non-textual views (Table 3).

Discussion

Findings showed that out of the 43 hospitals under investigation, 35 and 8 hospitals ranked good and moderate, respectively (Table 2). Among these hospitals, 27 hospitals were located in the cities of Fars province. Out of these 27 hospitals, 20 and 7 hospitals had good and moderate ranks, respectively. Out of the 16 hospitals located in Shiraz; also, 15 and 1 hospitals obtained good and moderate ranks, respectively.

In addition, among the 43 educational hospitals of Fars province, the lowest score was related to interactive exchange of views, while the highest scores were related to information objectivity, information accuracy and non-textual views.

Vara et al. evaluated the website of English language publications of Iran's government universities. The study results showed that the websites' information credibility was at a good level, which is consistent with the findings of the present study (11).

Our study results demonstrated a weak level of interactive exchange of views, which is in agreement with the results of the study by Esmaeil et al. Their research revealed that the aforementioned criterion was below half of the standards. However, they concluded that non-textual views criterion was below 50%, which was in contrast to the findings of the current study (12). The main page of each website plays a critical role in creation of relationship, provision of services, and attraction of more attention to the website. In the current study, "About us" component, which is one of the subcategories of information credibility criteria, was in a very good level in all of the websites. On the contrary, Moradi et al. investigated the structure and content of websites of selected educational hospitals in Iran and reported this criterion to be at a very weak level. Additionally, their analysis ranked Shiraz Namazi hospital as very weak in all evaluation levels (4). However, the present study showed that the website of Namazi hospital was at a good level, indicating its growing trend in the recent eight years.

In our study, all of the hospitals ranked as moderate regarding information updatedness. This was in contrast to the findings of the study conducted by Hamdipour to evaluate the websites of libraries of Iran's universities of

medical sciences in 2011. This criterion obtained a weak rank in that study (13). Similar results were also obtained by Moradi et al (4). Considering navigation, the websites of hospitals of Fars province were ranked as moderate, which is not in line with the results of the study by Hamdipour (13).

The hospitals of Fars province also obtained a good rank regarding accessibility, which is similar to the study Nadri performed to evaluate the structure of websites of hospitals of Khuzestan province in 2014 (10). Finally, the websites of Fars province were ranked as moderate regarding efficiency; this is consistent with the results of the research by Nadri (10). Yet, this criterion should be taken into account more while designing websites.

Conclusion

Findings showed that the overall quality level of most of the hospital is relatively acceptable. In addition, the scores regarding information accuracy, non-textual views and information objectivity were optimal. The total scores on information credibility and accessibility were also somewhat acceptable, while they need to be promoted in some websites. But it is necessary that the hospitals improve their websites based on information updatedness, coverage of special addressees, navigation, efficiency, and interactive exchange of views.

The fact that the hospitals of Shiraz and the cities both were ranked as weak regarding interactive exchange of views needs more attention. In order to reduce the number of daily referrals to the hospitals, the quality level of this area must be better than previously.

Table 1. Hospital Website evaluation checklist

1- Information credibility
mentioning the way to contact the hospital (postal address, telephone number and e-mail)
existence of link "About Us" or introduction of the hospital
hospital guide (insurance coverage and visit days)
introduction of different wards and facilities
existence of the hospital's name and address on each page
statement of the names of individuals with intellectual property rights
2-Information accuracy
lack of spelling, grammatical, and typographical errors
3-Information updatedness
mentioning the first date of putting information resources (with any format) on the web page
mentioning the last date of reviewing the content of the web page,
mentioning the intervals of updating the information
existence of statistical data on each page
updatedness of news and events
date (calendar)
information about incidents, news, meetings, events, exhibitions, and congresses
existence of RSS system
4-Coverage of special addressees
mentioning the estimated time required for completion of the web page
guide for patients
guide for staff
5-Interactive exchange of views
existence of a specific system for users' feedback,
possibility of signing in the website
fast and accurate response to users' questions (Frequently Asked Questions (FAQ) system)
users' awareness about the time of receiving their responses
6-Information objectivity
absence of advertisements on the pages
7-Navigation
existence of shortcuts for effective and easy access to the websites' popular pages
representativeness of the main page
accessibility of different parts of the website from the main page
existence of return link to the main page on all the pages
identification of links by using underlines or specific colors

presentation of visited and not-visited links by change in their colors
existence of the website's internet address on the body of the main page
existence of the map or views on the main page
existence of an internal search engine
8-Non-textual views
absence of irrelevant animations
utilization of graphical images and audio and video files for increasing the website's efficiency
9-Accessibility
accessibility of the website through general search engines
easiness of restoration by the general search engines (being among the first 5 options of Google search engine)
having access to general search engines for surfing the internet, using standard fonts
users' access to the needed resources by less than 3 clicks
10-Efficiency
existence of Persian and English versions
announcement of the number of referrals to the website in a particular time period
easy access to Help
existence of clinics' programs
possibility of searching for physicians based on their specialty
link to library and the related database
existence of an educational link
possibility of downloading the necessary software
existence of electronic forms on the website.

Table 2. Hospital Website evaluation checklist

			Quality level				
	Hospital	Score out of 50	Very good	Good	Moderate	Weak	Very weak
Websites of hospitals of counties of Fars province	Abadeh	35.33±2.86		*			
	Eshkenan	33.67±1.69		*			
	Eghlid	36.33±2.05		*			
	Khorrambid	29 ± 0.00			*		
	Zarghan	31.67±2.49		*			
	Sepidan	32.67±1.69		*			
	Farashband	36±2.16		*			
	Qir-o-Karzin	33±1.63		*			
	Lamerd	27.67±2.86			*		
	Larestan	24.33±0.47			*		
	Nourabad	33.67±2.05		*			
	Arsenjan	29.33±2.49			*		
	Evaz	33±1.41		*			
	Bavanat	33.33±2.35		*			
	Beiram	24.33±0.94			*		
	Kharameh	29.33±2.05			*		
	Estahban	36±0.81		*			
	Zarindasht	29 ± 1.41			*		
	Sarvestan	30.67±2.49		*			
	Firouzabad	32.67±1.88		*			
	Kazerun	31.67±1.69		*			
	Neiriz	34±1.41		*			
	Mohr	30.33±3.68		*			
Khonj	20.67±2.62				*		
Darab	34.67±0.94		*				
Marvdasht	37.67±0.94		*				
Pasargad	32.67±3.9		*				

Websites of hospitals of Shiraz	Ebn-e-Sina	34.33±4.49					
	Moharreri	33±2.16		*			
	Al-Zahra	34.33±1.24		*			
	Amir	31.33±3.85		*			
	Chamran	34±0.81		*			
	Hafez	37.67±1.88		*			
	Hazrat-e-Zeinab	36.33±1.69		*			
	Khalili	38.67±1.24		*			
	Dastgheib	39±1.63		*			
	Rajaei	35.67±0.94		*			
	Ali-e-Asghar	33.67±1.24		*			
	Faghihi	36.67±0.94		*			
	Ghotbeddin	30.33±4.64		*			
	Namazi	37.33±0.94		*			
Amiralmomenien	33±1.41		*				
Madarokodak	27±2.16				*		

Table 3. The evaluation criteria of websites of educational hospitals of Fars province in 2016

Evaluation criteria	Lowest Rank			Highest Rank			Total scores Percentage and Rank
	Hospital's website	Mean ± SD	Criteria rating (%) and rank	Hospital's website	Mean ± SD	Criteria rating (%) and rank	
Information credibility	Khonj Kazeron Larestan	3 ±0.6	50 Moderate	Namazi	6±0	100 Very good	66.66 Good
Information updatedness	Khonj	1.67±0.975	20.75 Weak	Farashband Eghlid Marvedasht Namazi Khalili Rajaei Dastgheib Ghalb AL Zahra	Good	50.5	Moderate
Coverage of special addressees	Beiram, Khonj and Zarin- dasht	0.33±0.47	11 Weak	Dastgheib Amiralmomenin	2.33±0.47	77 Good	55.66 Moderate
Interactive and exchange views	Khonj Farashband Khorrarnbid Kharameh	0.67±0.47	16.75 Weak	Lamerd Faghihi	2±0.87	50 Moderate	30.25 Weak
Navigation	Lamerd	4±0.81	44.4 Moderate	Abade Estahban Bavanat Namazi Khalili	7±0.64	77.7 Good	55.55 Moderate
Accessibility	Amir Oncology Ghotbodan Zarghan	3±0.66	60 good	khalili and Dast- gheib	5±0.00	100 Very good	60 Good
Efficiency	khonj and Madar-o-Ko- dak	3±1.05	27.27 Weak	9.67±0.47	Hafez	87.9	54.54 Moderate

Conflict of Interest

None declared.

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